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AMERICAN MEDICAL ASSOCIATION, CHICAGO 10

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« Washington News »

Congress Interested in Agencies' Expansion' of Power • •
A H A Offers Program for U S Employee Health Insurance • •
Both Parties Have Bills for Medical School Assistance • •
Civil Defense Proposes Longer Care for Thermo nuclear Victims • •

STUDY ORDERED ON AGENCIES' EXPANSION OF AUTHORITY

A House subcommittee intends to try to find out if executive departments and agencies are broadening their authority through regulations based on and interpretations of laws passed by Congress

It was not possible to learn immediately how extensive the investigation would be However, the subcommittee has authority to continue its study throughout the remainder of the 85th Congress (until adjournment in 1958), it is expected to set up a separate staff, and it is understood to have access to $250,000 in committee funds for this purpose

The study is under direction of Rep Morgan M Moulder (D, Mo), chairman of a subcommittee on legislative oversight of the Committee on Interstate and Foreign Commerce In the health-medical fields, organizations to be investigated include the Federal Trade Commission, Food and Drug Administration, National Institutes of Health, National Science Foundation, and Public Health Service

Announcing the study, Mr Moulder said that the objective is to learn whether the law "has been and is being faithfully executed by the agency in the public interest" and whether the law and the standards contained in it 'have been and are being interpreted by rule, or internal procedures, to enlarge the area of regulation beyond that intended, and to administer it through procedures not intended by the Congress '

Subjects to be considered will include review and analysis of the law and the intent of Congress when it enacted the law the changing circumstances and growth of the field, whether the law s standards can be drafted in more precise terms with a view to reducing administrative discretion, manner in which rules have been applied in practice internal interpretations as distinct from published rules, and enlargement of the area of regulation supported by the agency's own judicial decisions

A H A'S PLAN FOR U S EMPLOYEE HEALTH INSURANCE

The American Hospital Association's revised plan for health insurance for federal employees now is before the House Post Office and Civil Service Committee, after its introduction by Rep Chet Holifield (D, Calif) Under it the 2 million or so U S civilian employees and their dependents, estimated at about the same number, would be eligible for basic health insurance, with the government paying half the cost, and major medical insurance

Collections from the employee would be made through payroll deductions, something the administration has not yet accepted The Civil Service Commission is drafting an administration bill on this subject, but its details have not been made public

In offering the bill, Mr Holifield said "As an instrument for the financing of needed hospital and medical care, voluntary health insurance has brought succor to million upon millions of our citizens and relief from financial pain as well as bodily pain As a result of this movement of prepaying the costs of possible illness, today the price of health protection has become an accepted normal item in the American family budget This is an accomplishment to be listed among the greatest in the advance of health care during your lifetime and mine '

He added 'The basic benefits prescribed by the bill for the two nationwide contracts are more comprehensive and more adequate than those usually available today to Federal employees or members of the general public So far as concerns hospitalized illness, these benefits are comparable to the best industrial contracts existing today"

Under the A H A proposal, the Civil Service Commission would negotiate two types of contract on a nationwide basis

One would offer basic coverage on a service basis for both doctors' in-hospital charges and hospitalization The maximum coverage available in an area would be provided for doctor s charges, but the same hospital coverage would be provided throughout the country

The other nationwide contract would offer basic coverage on an indemnity basis, but the basic hospitalization benefit would have to be sufficient to meet the cost of hospital care On this point Mr Holifield says 'This provision is included because to impose on the employee a portion of the cost of hospitalization in the ordinary case imposes on him a burden that will often prove unreasonably heavy to persons of the income level of most federal employees '

At the same time the employee would be offered payroll deduction facilities to pay for major medical or catastrophic insurance

Employees would have a choice of service or indemnity basic coverage, and they also would be permitted to purchase protection through federal employees association or through group practice arrangements

The U S would contribute a maximum of $2 17 per month for each employee, or $5 42 for employee and family, matching the employee's contribution Thus if the costs of basic insurance for a family came to less than $10 84 per month, the balance of the U S contribution would be applied as matching money to help pay the cost of major medical coverage

It is estimated that the U S would pay about 40% of the total health insurance costs for the employee taking out both basic and major medical insurance

At present it is estimated that federal employees who are enrolled in Blue Cross and Blue Shield pay about $3 50 per month for their own coverage, and $8 90 if families are covered Thus under the A H A plan the employee would pay less for basic and major medical protection than he now pays for basic protection alone

It is expected the Post Office and Civil Service Committee will defer hearings on federal employee health insurance until the administration bill has been introduced (Continued on next page)

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(cont d)

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Washington News—Continued

DEMOCRATS' BILL ON AID TO MEDICAL AND DENTAL SCHOOLS

Five Democratic senators have jointly introduced a bill for federal aid to medical, dental, and osteopathic schools for construction and equipment The sponsors are Senators Hill (Ala), chairman of the Labor and Welfare Committee, Neely (W Va), Humphrey (Minn), Smathers (Fla), and Kennedy (Mass)

There are some significant differences between this bill and the administration bill, drafted earlier and introduced at the request of Secretary Folsom Here are some comparisons

The administration bill would amend the present three-year 30-million-dollar a year program for research construction grants by increasing the amount to a total of 225 million dollars for use over four years, with the money to help build medical-dental teaching facilities as well as research facilities

The Democrats would leave intact the present research grants program of 30 million dollars a year for three years, and in addition provide 60 million dollars a year for five years to help build medical-dental teaching facilities, for a total of 390 million dollars

Under the administration bill, federal money could not exceed 50% of the project cost The Democrats also call for 50-50 matching, except that the federal government would provide money on a two-to-one basis under two conditions (*a*) if the school gives assurances that the freshman enrollment would be increased by 5% and (*b*) in the case of new schools

To advise on the program, the administration bill would expand the present committee that advises on medical laboratory grants, whereas the Democrats' bill would set up a new 12-man committee, with half of the members from the medical and dental professions

U S CONTROL OF AMPHETAMINES AND BARBITURATES

Legislation that would place controls over the manufacture, distribution, and possession of barbiturates and amphetamines is getting bipartisan support both in and out of Congress Democratic Rep Hale Boggs of Louisiana and Republican representatives John Byrnes of Wisconsin and Antoni Sadlak of Connecticut are sponsoring identical bills

At the outset of the hearings, Chairman Williams said the committee wanted answers to the following questions 1 What are the circumstances that justify these particular drugs being singled out? 2 If there are special circumstances, what is the nature and magnitude of problems created 3 Will provisions in the legislation meet these problems? 4 Are there any alternatives to the solutions suggested in the pending bills?

Secretary Folsom of the Department of Health, Education, and Welfare, estimated it would cost $500,000 to enforce the new law in the first full year of operation

15 MILLION DOLLARS IN WATER POLLUTION CONTROL GRANTS

Federal water pollution control grants totaling $15,212,939 have been awarded during the past two months to 165 municipalities for sewage treatment works The cities and towns will add $49,928,035 of their own funds

These additional grants bring the total awarded since the program's inception last December to $19,096,474, granted to 225 municipalities Congress in last session authorized annual grants of 50 million dollars for 10 years

Maximum grants of $250,000 went to the following 15 areas Mobile, Ala , Richmond, Calif , Norwich, Conn , Ottawa, Ill , Decatur, Ind , Ottumwa, Ill , Owensboro, Ky , Albuquerque, N Mex , Binghamton, N Y , Onondaga Public Works, Syracuse, N Y , Fayetteville, N C , Roseburg, Ore , Casper, Wyo , and Columbia, East Ridge, and Harriman, Tenn

INCREASE IN MENTAL PATIENTS

A report from the National Institute of Mental Health covering 1955 lists 652,000 patients in public hospitals for the prolonged care of the mentally ill, a 1 6% increase over 1954 State hospitals cared for 96 4% and county hospitals 3 6%

In 1955, 3 4 persons were hospitalized for each 1,000 of the population The maintenance expenditure in public hospitals averaged $3 04 per patient a day, totaling $1,107 79 a year

CHANGES IN CIVIL DEFENSE MEDICAL CARE PLAN

The Federal Civil Defense Administration has proposed a new plan providing total medical care for casualties of a thermonuclear attack for as long as one year, in contrast to previous plans concerned only with the first three weeks

Two types of treatment centers are recommended the first for immediate lifesaving measures and the second for more definitive care of the surviving population

A 10-member medical task force committee developed the plan through two logistic exercises last year at Fort Meade and Brooke Army Medical Center that were viewed by representatives of several national health groups

The committee designed the following three-point system

1 Collecting points immediately to the rear of areas of greatest damage where first-aid measures could be taken

2 Emergency treatment station where casualties could be kept on a short-term 'holding basis

3 Civil defense emergency hospitals including substantially the same items as before but having additional equipment and increased capabilities for general medical and surgical care

MISCELLANY

The Internal Revenue Service has decided that a researcher must regard as self-employment income government grants received through an institution, when the institution does not control or direct his research, his status is that of an independent contractor

Of 289 government activities studied as possibly offering unfair competition to business, 50% have been shut down in two years, according to Budget Director Percival F Brundage Testifying before a Senate subcommittee, Mr Brundage said that among the discontinued activities included "20 surgical or orthopedic units,' but he did not say in which agencies or departments they were located

Secretary Folsom presented 40 honor awards to outstanding employees of HEW, including 9 in the Public Health Service

(cont d)

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1959 Clinical Meeting Dallas, Texas Dec 1-4

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May

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Maine Medical Association The Samoset Hotel Rockland June 23 25 Dr Daniel F Hanley Dudley Coe Infirmary Bowdoin College Brunswick Executive Director

Society of Biological Psychiatry, Claridge Hotel Atlantic City N J June 15 16 Dr George N Thompson 2010 Wilshire Blvd, Los Angeles 57 Secretary

Society for Investigative Dermatology Belmont Plaza Hotel New York June 1 2 Dr Herman Beerman 255 S 17th St Philadelphia 3 Secretary

Society of Nuclear Medicine Skirvin Hotel Oklahoma City June 20 23 Dr Robert W Lackey 452 Metropolitan Bldg Denver Secretary

Society for Pediatric Research La Playa Hotel Carmel Calif June 16 21 Dr Sydney S Gellis 330 Brookline Ave Boston 15, Secretary

(Continued on page 28)

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The University of Michigan Regional Conference on Hypertension Ann Arbor Mich. June 7-8 Dr John Sheldon Univ of Michigan Medical School Ann Arbor Mich Director

Woman s Auxiliary to the American Medical Association Roosevelt Hotel New York June 3-7 Miss Margaret Wolfe 535 N Dearborn St Chicago 10 Secretary

Wyoming State Medical Society Jackson Lake Lodge Moran June 16 19 Mr Arthur R Abbey Box 2036 Cheyenne Executive Secretary

INTERNATIONAL AND FOREIGN

May

Congress of French Chapter International College of Surgeons Reims France May 24 26 1957 Dr Darget 17 rue Casteja Bordeaux (Gironde) France Secretary-General

Congress of French Society of Ophthalmology Paris France May 12 16 1957 Dr Marcel Kalt 81 rue Saint-Lazare Paris 9e France Secretary

Congress of International Association for Study of the Bronchi Lisbon Portugal May 25 26 1957 For information address Prof F Lopo de Carvalho 138 rua de Junqueira Lisbon Portugal

International Conference on Audiology Chase Hotel St Louis Mo U S A May 13 16 1957 For information address Dr S Richard Silverman Central Institute for the Deaf 818 South Kingshighway St Louis Mo U S A

International Congress of International Society of Bronchoesophagology Philadelphia Pennsylvania U S A, May 12 13 1957 Dr Chevalier L Jackson 3401 North Broad St Philadelphia 40 Pennsylvania U S A Secretary

International Congress of Otolaryngology Hotel Statler Washington D C U S A May 5 10 1957 Dr Paul H Holinger 700 North Michigan Ave Chicago 11 Illinois U S A General Secretary

International Congress for Social Medicine Vienna Austria May 31-June 2 1957 Secretariat Prof Dr T Antonione Vienna 9 Spitalgasse 23 Austria

International Symposium of Clinical Psychopharmacology Milan Italy May 9 11 1957 Secretariat Drs S Garattini and V Ghetti Via A del Sarto 21 Milan Italy

International Voice Conference (Laryngeal Research Function and Therapy) Chicago Illinois U S A May 20 22 1957 For information address Dr Hans von Leden 30 North Michigan Ave Chicago 2 Illinois U S A

World Congress for Acupuncture Vienna Austria May 25 28 1957 For information address Austrian Association for Acupuncture XV Schwenderstrasse 57 Vienna Austria

June

Canadian Medical Association Edmonton Alberta Canada June 17 21 1957 Dr A D Kelly 150 St George Street Toronto 5 Ont Canada General Secretary

International Congress on Medical and Scientific Film Palace of Expositions at the Valentino Turin Italy June 1-9 1957 For information address Secretariat Minerva Medica Corso Bramante 83 85 Turin Italy

International Congress on Medicine and Surgery Palazzo of Expositions at the Valentino Turin Italy June 1 9 1957 For information address Segreteria Generale Minerva Medica Corso Bramante 83 85 Turin Italy

International Congress of Photobiology Torino Italy June 2 8 1957 For information address Prof Enrico Benassi Dept of Radiology University of Torino Torino Italy

International Congress on Rheumatic Diseases Toronto Ont Canada June 23 28 1957 For information address International Congress on Rheumatic Diseases P O Box 237 Terminal A Toronto Ont Canada

International Convention of X-Ray Technicians Sheraton Park Hotel Washington D C U S A June 8 13 1957 Miss Leslie A Majors R T 5710 Newton St Cheverly Md U S A Chairman Publicity Committee

International Hospital Federation Lisbon Portugal June 3 7 1957 Capt J E Stone 10 Old Jewry London EC2 England Secretary-General

International Therapeutic Congress Utrecht Netherlands June 4 6 1957 Dr F A Nelemans Vondellaan 6 Utrecht Pays Bas Netherlands Secretary General

William Harvey Tercentenary Congress Royal College of Surgeons London England June 3-7 1957 Dr D Geraint James Harveian Society of London 11 Chandos St Cavendish Square London W 1 England Honorary Secretary

July

British Medical Association Newcastle upon Tyne July 15 19 1957 Dr A Macrae B M A House Tavistock Square London W C 1 England Secretary

International Congress of Clinical Pathology Brussels Belgium July 15 20 1957 Prof M Welsch Service de Bacteriologie et de Parasitologie Universite de Liege 32 Blvd de la Constitution Liege Belgium Secretary General

International Congress of Dermatology Stockholm Sweden July 31-Aug 6 1957 Dr C H Floden Karolinska Sjukhuset Hudkliniken Stockholm 60 Sweden Secretary General

International Congress of Electroencephalography and Clinical Neurophysiology Brussels Belgium July 21-28 1957 For information address Dr R G Bickford Mayo Clinic Rochester Minnesota, U S A

International Congress of Neurological Sciences Brussels Belgium July 21 28 1957 For information address Dr Pearce Bailey National Institute of Health Bethesda 14 Maryland U S A

International Congress of Neuropathology Brussels Belgium July 21-28 1957 Dr Ludo van Bogaert 47 rue de l Harmonie Antwerp Belgium Secretary General

International Congress of Neurosurgery Brussels Belgium July 21 28 1957 For information address Dr William B Scoville 85 Jefferson Street Hartford Connecticut U S A

International Congress of Nutrition Paris France July 24 29 1957 For information address Congress International de Nutrition 71 Blvd Pereire Paris 17e France

International Congress on Occupational Health Helsinki Finland July 1-6 1957 Dr Pertti Sumari c/o Tyoter Veyslaitos Haattmaninkatu 1 Helsinki-Toolo Finland Secretary General

International Congress of Permanent International Committee on Industrial Medicine Helsinki Finland July 1-6, 1957 For information write Secretary General 3 Chemin de l Escalada Geneva Switzerland

International Congress of Psychology Brussells Belgium July 28-Aug 3 1957 Dr M Louis Delys 296 Ave des Sept Bonniers Forest Brussels Belgium Secretary General

International Gerontological Congress Merano-Bolzano Italy July 14-19 1957 For information address Segreteria Quarto Congresso Internazionale de Gerontologia Viale Morgagni 85 Firenze Italy

International League Against Epilepsy Brussels Belgium July 21 28 1957 Dr Radermecker Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Meeting on Forensic Pathology Brussels Belgium July 20 21 1957 For information address Dr F E Camps Dept of Forensic Medicine The London Hosp Medical College Turner St London E1 England or Dr Arthur H Dearing Executive Secretary College of American Pathologists 2115 Prudential Plaza Chicago 1 Ill U S A

International Neurological Congress Brussels Belgium July 21-28 1957 Dr Ludo van Bogaert Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Poliomyelitis Conference Geneva Switzerland July 8 12 1957 Secretariat Hotel du Rhone Geneva Switzerland

International Psychoanalytical Association Paris France July 28-Aug 1 1957 For information write Dr S Nacht 187 rue St Jacques Paris France

International Society of Geographical Pathology Paris France July 9 11 1957 For information address Dr J P Hardouin 21 Avenue Pierre de Serbie Paris 16 France

International Society for the Welfare of Cripples London England July 22 27 1957 For information address Miss M Drury 34 Eccleston Square London S W 1 England

International Symposium on Medical Social Aspects of Senile Nervous Diseases Venice Italy July 20-21 1957 For information address Secretariate Viale Morgagni 85 Firenze Italy

Neuroradiologic Symposium Brussels Belgium July 21-28 1957 For information address Professor Melot Hôpital Universitaire St Pierre Brussels Belgium Secretary General

August

Argentine Congress of Gastroenterology Salta Argentina S A Aug 12-17 1957 Secretariat Avenida Santa Fe 1171 Buenos Aires Argentina S A

Congress of International Society for Cell Biology St Andrews Fife Scotland Aug 28 Sept 3 1957 Prof H G Callan Bell Pettigrew Museum The University St Andrews Fife Scotland Secretary General

International Congress on the Biology of the Hair Follicle and the Growth of Hair Royal Society of Medicine London England Aug 7-9 1957 Dr G H Bourne London Hospital Medical College Whitechapel London E 1 England Hon Secretary

International Congress of European Society of Haematology Copenhagen Denmark Aug 26 31 1957 Dr Aage Videbask Blegdamsvej 11 Copenhagen Denmark Secretary General

International Congress on Group Psychotherapy Zurich Switzerland Aug 29 31 1957 For information write Dr Joshua Bierer 140 Harley St London W1 England

International Society for the Study of Biological Rhythms Semmering Austria Aug 26 28 1957 For information write Prof A Jores II Med Universtats Klinik Hamburg Eppendorf Germany

International Symposium on Curare and Curarizing Substances University of Brazil Rio de Janeiro Brazil Aug 5 10 1957 For information write Prof Carlos Chagas Instituto de Biofisica Universidade de Brazil 458 Avenida Pasteur Rio de Janeiro Brazil or Prof Daniel Bovet Instituto Superiore di Sanita 299 Viale Regina Elena Rome Italy

World Federation for Mental Health Copenhagen Denmark Aug 11 17 1957 Miss E M Thornton M A 19 Manchester St London W 1 England Secretary General

September

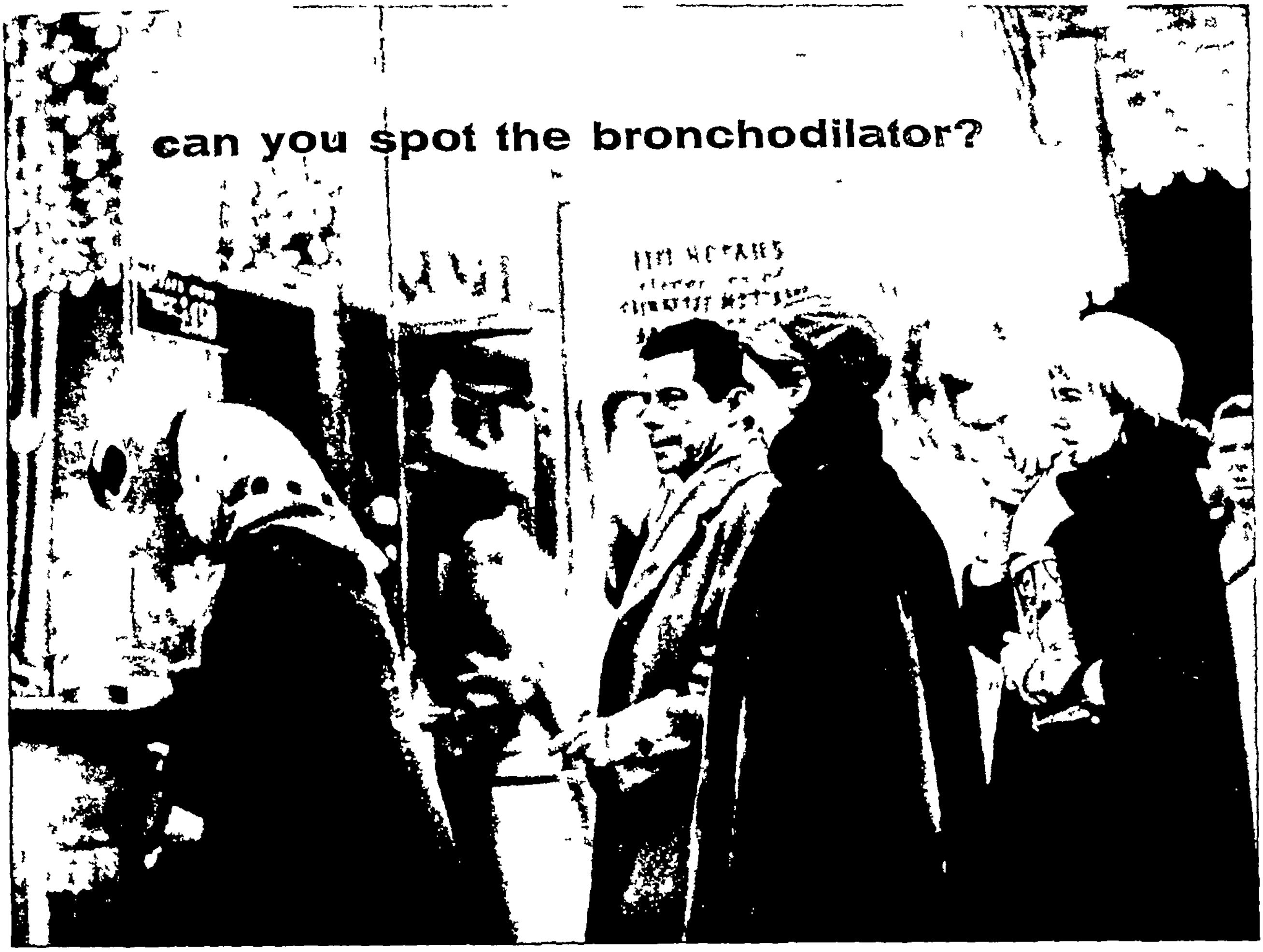
Congress of International Society of Orthopedic Surgery and Traumatology Barcelona Spain Sept 16 21 1957 For information address International Society of Orthopedic Surgery and Traumatology 34 rue Montoyer, Brussels Belgium

Congress of International Union of Railway Medical Services Paris France Sept 16 21 1957 For information write Dr J Ortega 41 rue Michelet Paris 6 France

International Conference on Radio Isotopes in Scientific Research Paris, France Sept 9 20 1957 For information address United Nations Educational Scientific and Cultural Organization 19 Avenue Kleber Paris 16 France

International Congress of the International Union of the Medical Press London England Sept 13 14 1957 For information write British Medical Association B M A House Tavistock Square, London WC1 England

(Continued on page 30)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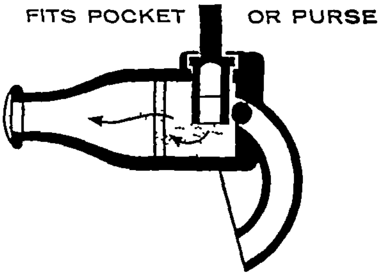

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International Congress of Military Medicine and Pharmacy Beograd and Opatija Yugoslavia Sept 29 Oct 5 1957 Colonel Dr Aleksandar Mezic rue Nemanjina 15 Beograd Yugoslavia Secretary General.

International Congress of Psychiatry Zurich Switzerland Sept 1-7 1957 For information write Prof J Wyrsch Stans (Lucerne) Switzerland

International Symposium of Medicine and Social Hygiene Trieste September 6-12 1957 Dr Mario Lovenati Via Cavana 18 Trieste Secretary General

World Medical Association Istanbul Turkey Sept 29 Oct 5 1957 Dr Louis H Bauer 10 Columbus Circle New York 19 New York U S A Secretary General

October

Assembly of Association of French Speaking Doctors Great Hall Faculty of Medicine 85 Boulevard Saint Germain Paris France Oct 16 18 1957 For information address General Secretary Congres Francais de Medecine Prof G Boudin Paris France

Congress of International Society of Surgery Mexico City Mexico Oct 27 Nov 2 1957 Dr L Dejardin 141 rue Belliard Brussels Belgium General Secretary

French Congress of Otolaryngology Faculte de Medecine de Paris Paris France Oct 15-18 1957 For information address Administrative Secretary French Congress of Otolaryngology 17 Rue de Buci Paris France

International Congress of International Society of Angiology Atlantic City N J U S A Oct 10 13 1957 Dr H Haimovici 105 East 90th Street New York 28 New York U S A Secretary General

November

Inter American Congress of Pan American Medical Association Mexico City Mexico Nov 18 22 1957 Dr Joseph J Eller 745 Fifth Ave New York 22 N Y U S A Executive Director

Pacific Science Congress Bangkok Thailand Nov 18 Dec 2 1957 For information address Pacific Science Council Secretariat Bishop Museum Honolulu 17 Hawaii

Pan American Congress of Endocrinology Buenos Aires Argentina Nov 3 9 1957 For information address Secretaria General Sociedad Argentina de Endocrinologia y Metabolisms Santa Fe 1171 Buenos Aires Argentina

Pan Pacific Surgical Congress Honolulu Hawaii Nov 14 22 1957 Dr F J Pinkerton Room 230 Alexander Young Bldg Honolulu 13 Hawaii Director General

MAGAZINE—TELEVISION REPORT

The following list of current medical articles in mass circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported*

TELEVISION

Sunday, May 12

ABC TV, 4 30 p m EST Medical Horizons will go to the Louisiana State Medical School in New Orleans for a discussion on new virus infections The program is produced in cooperation with the American Medical Association

MAGAZINES

U S News and World Report, March 29, 1957

Eat What You Like But— an interview with Dr Frederick J Stare Harvard School of Public Health

The tremendous upsurge of public interest regarding the relationship between diet and heart disease is reflected by this discussion Questions on cholesterol overweight tension and hard work are answered The article quotes Dr Stare who says in part, Actually I think one could show very carefully that there is a tremendous potential market for the food industry—to get people to eat less so they ll live longer to eat more But nobody wants to be the first to say Eat less of my product

Look, May 14, 1957

X-rays in Color," by Roland H Berg, *Look* Medical Editor

According to this article better diagnosis of certain diseases is made possible by a new method that changes the gray hues of an x-ray to bright colors and enables doctors to detect hidden disease and reduce a patient s exposure to radiation

Better Homes and Gardens, April, 1957

'Leukemia,' by Donald G Cooley

In this article leukemia is explained Some new treatments for the disease are discussed, and Dr William Dameshek is quoted The eventual control of leukemia, though perhaps not close at hand is a real portent for the not too distant future

Should Your Boy Play Organized Baseball? by Kenneth Anderson

Some of the pros and cons of little league baseball are discussed in this article The author suggests that if a boy has an inborn desire to play baseball he should be allowed to do so, but that no boy should be pushed

'Are You *Neglecting Your Child s Eyesight?* by John E Eichenlaub, M D

The author recommends regular eye tests for school age children

Life, April 22, 1957

A Clue in the Studies of Smoking Dangers

According to the article, a waxy substance found in the coating and the pores of tobacco leaves is a major source of cancer-producing tars in cigarette smoke

Redbook, May, 1957

Childbirth Under Hypnosis, by Ruth and Edward Brecher

Many answers to questions on the use of hypnotism in medicine are given in this article The authors find that hypnotism is being used by more and more obstetricians and with good results

Coronet, May, 1957

Liver for Life by Madelyn Carlisle

In this article liver is analyzed for its food value The author states that plain beef, pork, or lamb liver are all equally nutritious

'The Noble Agony of Mario Ponzio, by Geoffrey Bocca

The author tells of pioneering efforts by Professor Ponzio to cure cancer by radiology A heavy schedule of work and repeated exposure to radium burns finally ended the Italian scientist s life at the age of 71

Washington s Cancer Answer by Harold Helfer

People in the District of Columbia area who think they have cancer can pick up the telephone and dial a number that will put them in touch with a physician According to the author of the thousands who call 'Cancer Answer, most have described symptoms which indicated they did not have the disease

What Makes You Tense? by Anne Fromer

This article is based on the work of Dr Hans Selye director of the Institute of Medicine and Surgery at the University of Montreal The author finds that much sickness can be attributed to stress which causes a chemical imbalance which in turn produces specific disease

The Saturday Evening Post, April 27, 1957

How Medical Hypnosis Works, by Milton and Margaret Silverman

The article finds that hypnotism is a highly potent medical weapon It seems to be coming into its own, says the author with surgical and dental applications as well as psychiatric uses

Harper s Magazine, May, 1957

Toads, Mushrooms and Schizophrenia, by Howard Fabing, M D

Today we seem to be standing on the threshold of another series of discoveries of a very different kind which may have equally as far reaching effects on our concepts of the brain's workings and the treatment of mental illness Thus the author leads into an interesting and scholarly history of the relationship between chemistry and mental illness

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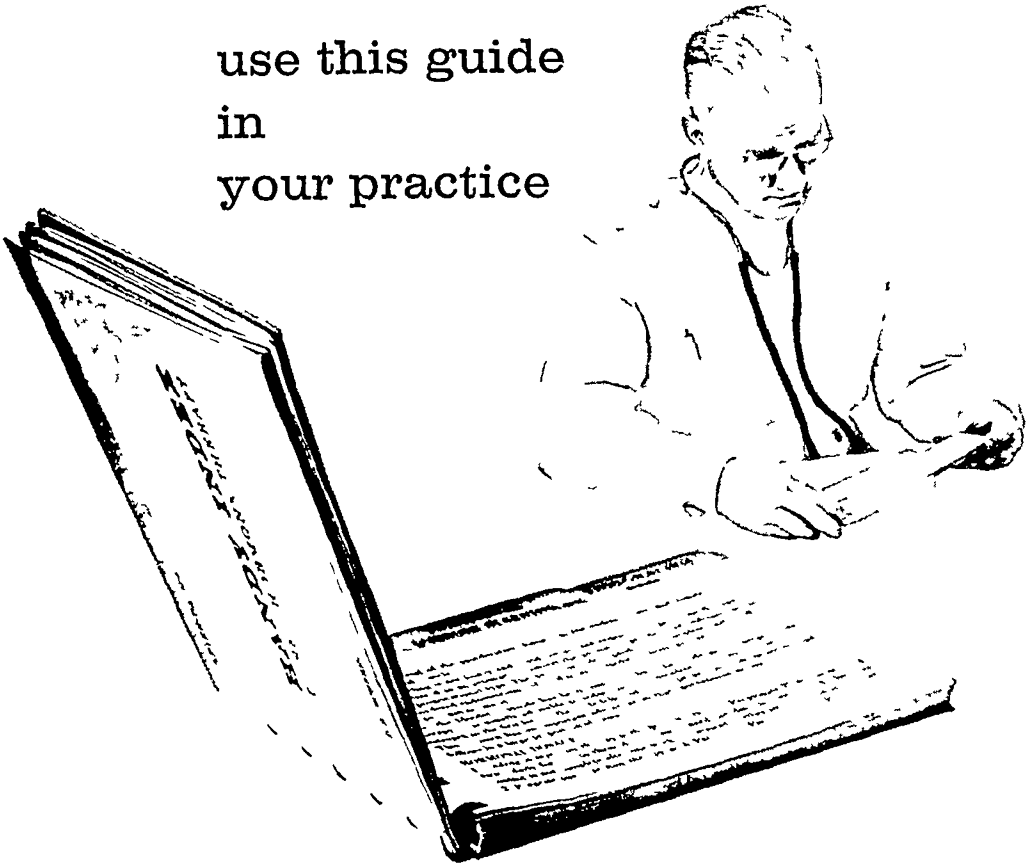

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From other Pages

Indigency Among Doctors

Administration of the Physicians Home [in New York State] for the past twelve years has revealed existing financial conditions among doctors and their widows that neither doctors at large nor the laity realize exist

Organized and incorporated under the charity laws of the State of New York in 1919 to care for indigent doctors, their wives widows, and dependent children, the Physicians Home has functioned continuously and has grown in size scope, and usefulness Its affairs are administered by an executive committee a board of directors of 27, and five trustees Income is *derived from annual [voluntary] membership dues of $10 from* members of the Medical Society of the State of New York, voluntary contributions of $2 00 solicited from State Society members when a bill for dues of the county societies is sent, *contributions from the woman s auxiliaries voluntary contributions* from individuals and bequests

Since our incorporation in 1919 (thirty-seven years) we have had 93 guests Of these 30 were widows three women doctors and 60 were male doctors Our guests have come from many of the 61 counties of the State Applicants are usually in the older age group of sixty to ninety Naturally most are afflicted with partially incapacitating geriatric pathology We simply have never had sufficient funds to accept the cost of nursing home and hospital care When such situations have arisen we have been able to assume only a part of the cost, an amount equal to that which we sent the particular guest each month before his custodial care began

We have never solicited funds outside of the membership of the Medical Society of the State of New York From time *to time we have received bequests (from individuals) which* we have placed in an endowment fund administered by the trustees with the financial advice of the Hanover Bank The income from this fund is used to supplement our other income which is used for the care of guests To my present knowledge similar organizations function only in Massachusetts and Pennsylvania and their budgets are considerably smaller than ours in New York State We have increased our appropriations for these purposes in each succeeding year During our fiscal year October 1 1954 to September 30, 1955, we gave to 34 guests $39 295

The practice of medicine has changed along with the changing times The cost of a medical education has increased Periods of internships residencies, and qualifications for specialty boards certification have likewise lengthened A professional man s income is exaggerated by the laity His expenses are overlooked His financial security in old age is not considered important enough to discuss He is expected to contribute to all charities and keep socially and physically fit Once his earning capacity is established, he is besieged by taxes No matter how necessary they are they are often financially crippling and will always be with him As a doctor advances into his most productive years, for a period of ten to fifteen years his expenses taxes, and family responsibilities increase It is very surprising how savings disappear when one has not anticipated meeting unusual financial responsibilities

When the ages of forties and fifties are reached, parental or collateral family responsibilities may suddenly loom large and financially devastating Preoccupation with professional advancement is a consuming element in a doctor s life, vital as it is, it may well cloud the vision necessary to foresee and establish the future Then comes the period of release from professional appointments, decreased professional activity, and a less *avid interest in advancement—a sort of dulling of the instinct* of competition—the invasion by competing younger doctors, the plateau from which the vista of life is less glamorous, and on looking backward things which might have been seem more poignant The procession, if one survives sufficiently long, leads into further decreased activity and geriatric pathology

Time and again these and similar situations of varying degrees have crossed the desks of those who have processed applications for beneficiary aid from the Physicians Home Tragedy —stark tragedy—tragedy of despair, no domicile or a meager one in an undesirable neighborhood, an empty larder, and clothes too few and tattered to make a respectable appearance, a withdrawal from environment of former associates, a disposal of personal belongings—even furniture, a proud and genteel poverty, a broken spirit, a stone wall, no known means of help or appeal, a state of prayer and bewildering hope—this is the group with whom, as president of the Physicians' Home, I have corresponded and been in contact If their qualifications for beneficiary aid fall within our bylaws, we have accepted them as guests, and instead of shepherding them into a home with segregation and regimentation, we send them a monthly check and allow them to live where and with whom they please This check is sent monthly and continues unless their financial situation betters and they do not need it In the event of death and the inability of the family and friends to finance it, we contribute toward a place of burial and decent funeral, otherwise only a public burial place would be available

Twice we have tried to run an organized home It was very expensive Very few wanted to enter it, and those who did were unhappy and disintegrated rapidly Elderly doctors and their wives and widows seem to prefer to stay in the community in which they have worked all of their professional lives There *they have friends old patients, and the most interests* It is true that even those in large cities desire to terminate their lives there rather than in an unfamiliar and strange countryside A doctor prefers his own library, his chair, his bed, books, and other associations of his home to those of a more formal institution

When our guests become incapacitated from cerebral, visual, auditory, pulmonary cardiac, renal and joint pathology, there is seldom adequate help in their homes to make them comfortable They must be moved into a nursing home This is expensive, and often the care is mediocre Here is where the *Physicians Home is handicapped in helping guests* We simply do not have the funds on hand to pay from $400 to $500 a month for this care The next problem is the difficulty of getting and keeping these doctors or their widows in hospitals Occasionally, a hospital will place one of our guests in a free or endowed bed, but more often the patient is billed by the hospital with very little or no reduction in its rates Again, we cannot help to the extent we would like The next alternative is a city, State, or county institution It is absolutely heart-rending to a family to face this situation The usual attempt to circumvent this practical solution often ends in total financial and social disruption of a family —B C Smith, M D, Indigency Among Doctors, *New York State Journal of Medicine*, Oct 1, 1956

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SURGICAL RESECTION FOR PULMONARY TUBERCULOSIS

RESULTS OF STUDY AT AN ARMY THORACIC CENTER

Lieut Col Elmore M Aronstam (MC), U S Army, Robert L Anderson, M D
Phoenixville, Pa, Capt Julio C Davila
and
Lieut Col John B Plum, (MC), U S Army

• *Experience with the surgical treatment of moderately advanced pulmonary tuberculosis in an Army hospital has been summarized for the years 1953 and 1954, when pulmonary resections were done in 93 and 114 patients respectively. The indication for surgery has almost always been the presence of significant residues of necrotic disease, and the majority of the operations have been segmental resections. The opinion formerly held, that overdistention of the remaining lung was harmful, was not borne out by experience. Consequently the number of primary thoracoplasties with lobectomy fell from 11 to 3, and the number of secondary thoracoplasties from 28 to 9. Complications after surgery have become less frequent, but the postoperative morbidity could be reduced even further. Of the 114 patients in the 1954 group, 111 were contacted in 1956. 110 were found to be well, and 75 were known to be gainfully employed.*

The past 10 years have seen two great advances in the treatment of pulmonary tuberculosis: first, the introduction of chemotherapeutic drugs and, secondly, the application of pulmonary resection. Largely as a result of these two factors, we have noted a progressive decrease in mortality from pulmonary tuberculosis; however, incidence figures have been less favorably affected.[1]

With reference to chemotherapy, about 11 years have elapsed since streptomycin was discovered in 1944. Later, aminosalicylic acid and isoniazid were introduced and found to be effective antibiotic agents. The past years have seen intensive investigation with various drug regimens or combinations of these agents. Both pathologically and clinically, they have been found effective. Disappearance of constitutional symptoms, absence of bacteria in sputums, and x-ray regression have been consistently observed. Maximal effect in the average case occurs at about six months. At this time, most shadows of a pneumonic nature have disappeared from the roentgenogram and the shadows of fibrosis, necrotic residuals, or cavities persist. Pathological material from resected specimens confirms the impression that the softer, non-necrotic component of a patient's tuberculosis has largely disappeared at this time in most instances.

Presently, there is no reliable evidence from pathological study that chemotherapy, as it is now employed, has any effect on a caseous or necrotic process once this process has been established. Liquefying and sloughing of a caseous area can continue during chemotherapy.[2] We have not infrequently observed this even after chemotherapy of one year's duration. The similarity of necrotic lesions resected without chemotherapy and resected after chemotherapy is striking.

The factors that result in aging or healing of necrotic and cavitary residual areas are not well understood at present. Tubercle bacilli can be recovered by culture invariably from the necrotic residuals showing only early evidence of healing.[3] In the advanced healing stage, the bacilli can be recovered only with difficulty. The phase of healing of a necrotic lesion is unpredictable from x-ray examination. No correlation has been made between the recovery of tubercle bacilli, the length of chemotherapy, chemotherapeutic regimen, and the degree of cavitary closure of the lesion.[3a] Recoverability of bacilli depends principally on the phase of healing of a necrotic lesion. This is, of course, undeterminable by clinical or radiologic methods. From the foregoing, it is apparent that drug

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From the Thoracic Surgical Service (Lieutenant Colonel Aronstam, Dr Anderson, and Captain Davila) and the Pulmonary Disease Service (Lieutenant Colonel Plum), Valley Forge Army Hospital.

Read before the Section on Military Medicine at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956.

therapy of tuberculosis has not lived up to the expectation that complete cure can be regularly obtained by this means

TABLE 1.—*General and Preoperative Data on Patients with Pulmonary Tuberculosis, 1953-1954*

	1953	1954
No. of Patients	93	114
Military	79	94
Civilian	14	20
White	85	87
Negro	8	22
Mongolian	0	5
Female	15	20
Male	78	94
Age group		
15-24	50	61
25-34	30	42
35-44	11	10
45-over	2	1
Stage of initial lesion according to National Tuberculosis Association standard		
Minimal	29	3
Moderately advanced	58	103
Far advanced	6	8
Initial x-ray impression		
Cavitary	46	63
Pneumonic	46	32
Nodular	62	99
Pleurisy	1	3
Extrapulmonary tuberculosis	2	0
Empyema	0	3
Lobe involvement		
Right upper lobe	52	67
Right middle lobe	3	11
Right lower lobe	10	25
Left upper lobe	45	51
Left lower lobe	11	14
Preoperative data		
Sputum smears positive	65	76
Sputum smears negative	28	38
Sputum cultures positive	61	68
Sputum cultures negative	32	46
Gastric smears positive	14	8
Gastric smears negative	79	106
Gastric cultures positive	21	15
Gastric cultures negative	72	99
Preoperative drug therapy		
Months		
None	0	1
1	4	7
2	3	7
3	1	15
4	4	14
5	8	18
6	37	15
7	12	18
8	5	10
9	6	2
10	5	3
11	1	2
12	4	2
15	2	0
17	1	0
Type		
Continuous	81	108
Interrupted	11	5
Streptomycin	93	113
Isoniazid	44	99
Aminosalicylic acid	91	71
Viomycin	1	0
Terramycin	0	2
Dihydrostreptomycin	0	2
Pneumoperitoneum	9	0
Pneumothorax	3	1
Condition existed prior to service		
Yes	6	8
No	73	86
None (civilians)	14	20
New lesion	86	99
Previous breakdown	7	15

Another disturbing fact is the appearance of resistance of tubercle bacilli to drugs after prolonged periods of medication The frequency and seriousness of this problem cannot be stated exactly at this time As information accumulates on relapses after chemotherapy and on cultures from resected specimens, this problem may be seen in proper perspective

With reference to resection as an adjunct in the treatment of tuberculosis, a concept of excising localized lung tuberculosis has always been an attractive one In the 1890's, Tuffier, Bloch, and Lawson attempted this In the middle 1930's, inadvertent resection of tuberculous lesions occurred in operative attempts to cure cancer One of the first successful planned resections of lobes for tuberculosis was done by Freidlander in 1935 Dolly and Jones in 1938 further stimulated the use of resection by an encouraging report From this point forward, improved surgical anesthesia, operative technique, and blood replacement greatly assisted in making the rapid advances to the place where today resection has a preferred place in the surgical management of tuberculosis

Many of the first planned resections for pulmonary tuberculosis were done for cavities, particularly in refractory cases As skill improved and chemotherapy became available, cases for resection included those in which there were thoracoplasty failures, totally diseased or destroyed lungs, tuberculous bronchiectasis, lower lobe cavitation, and isolated round lesions In light of pathological and bacteriological evidence available today, it is our feeling that removal of nearly all necrotic and cavitary residuals is desirable Excision has been withheld in our patients because of coexisting infirmities, advanced age, disease distribution of a degree and severity not amenable to surgery, critical pulmonary function, and psychosis Supraperiosteal extrapleural plombage and extrapleural pneumothorax are still used in the bad-risk patient with advanced disease and critical pulmonary function Primary thoracoplasty rarely has been employed Impairment of pulmonary function has, of course, been much greater with thoracoplasty than with resection Tailoring thoracoplasty has been employed concomitantly with resection and after resection, for space problems and persistent leaks The extent to which surgical resection is pursued in treating pulmonary tuberculosis at Valley Forge Army Hospital, an Army center where chest conditions are treated, has varied yearly from use in 15% to use in 20% of all patients admitted for pulmonary tuberculosis

Plan of Treatment

As past clinical experience has indicated that antituberculous drugs exert their maximal clinical and roentgenographic effect at 8 to 10 months of treatment, we have aimed at a total period of chemotherapy preoperatively and postoperatively of nearly one year This has seemed appropriate, as our group of patients have largely moderately advanced disease They do not have advanced, long-standing, bilateral fibrocavitary disease, for which a longer period of therapy and different approach to treatment would be needed

At a point as early in the course of treatment as possible, when the pneumonic component of the tuberculosis has been reversed and necrotic residuals are apparent, surgery is performed This is generally at from four to six months after medication has been started Surgery is followed with completion of chemotherapy and then a short period of leave before the patient goes to duty or discharge Total chemotherapy has been extended beyond the year level in some instances when particularly active areas of disease have been found at the time of surgery

Method of Study

Since 1953, the case histories of all patients undergoing surgery for proved cases of pulmonary tuberculosis have been carefully abstracted Each year a detailed questionnaire is forwarded to the patient When review of the returned questionnaire leaves some doubt as to the patient's health, he is invited back at Army expense for reexamination If this is not practicable, his local physician or the theater surgeon is contacted for further information about the patient Thus, we have a fairly complete follow-up picture on each patient who has undergone surgery

TABLE 2 —*Surgical Data on Patients with Pulmonary Tuberculosis 1953 1954*

Surgery indication	1953	1954
Residual disease	90	108
Exploratory thoracotomy	3	0
Destroyed lung	0	1
Empyema	0	1
Pleurisy with effusion	0	3
Diagnostic thoracotomy	0	1
Primary operation		
Segmental resection	16	66
Wedge resection	2	6
Lobectomy	20	16
Pneumonectomy (extrapleural)	0	1
Primary thoracoplasty	0	1
Decortication	0	3
Decortication and resection	0	1
Lobe and thoracoplasty	11	3
Lobe decortication and resection	1	0
Segment and thoracoplasty	2	0
Segment and wedge	3	6
Segment and lobe	5	5
Segment and decortication	0	1
Segment lobe and thoracoplasty	3	1
Wedge and lobe	0	3
Segment wedge decortication and resection	0	1
Secondary operations		
Thoracoplasty	28	9
Segment and thoracoplasty	1	0
Open drainage	1	0
Ligation of bleeding vessels	2	0
Phrenic crush	3	0
Lobectomy	1	0
Closure of fistula	2	0
Thoracotomy for bleeding	1	0
Segmental resection	0	1
Drainage of empyema	0	2
Thoracotomy for wound dehiscence	0	1
Thoracotomy for fistula	0	1
Thoracotomy with thoracoplasty	0	2
Gross residual disease left at surgery		
Yes	16	32
No	77	82

Results

The results of our case analysis and follow-up may be seen in the accompanying tables, which consist of data on patients operated on in 1953 and 1954 These data were collected in the spring of 1956 The 1953 and 1954 results are in separate columns to indicate some of the changing trends in treatment and results

TABLE 3 —*Postoperative Data on Patients with Pulmonary Tuberculosis, 1953 1954*

Postoperative complications	1953	1954
Persistent air leak	3	6
Persistent space	7	8
Atelectasis	6	6
Bronchopleural fistula	5	3
Hemorrhage	7	1
Empyema	2	5
Scapula caught under rib	2	0
Extrapleural hematoma	0	2
Pleural effusion	1	2
Wound infection	1	1
Cardiac arrest	1	0
Thrombophlebitis	0	1
Wound dehiscence	1	1
Contralateral pneumothorax	1	0
Partial right radial nerve paralysis	1	0
Small subscapular effusion	1	0
Postoperative pneumothorax	0	1
Phrenic paralysis left leaf of diaphragm	0	1
Patients with no complications	65	94
Pathology		
Smear and stain		
Positive	51	64
Negative	42	49
Culture		
Positive	21	30
Negative	72	83
Activity pathologically		
Active	4	0
Moderately active	88	113
Inactive	1	0 (1 case thoracoplasty)
Cavitary	14	36
Nodular	89	103
Postoperative chemotherapy		
Months		
None	1	0
1	1	2
2	5	3
3	9	6
4	18	20
5	7	9
6	38	51
7	3	8
8	6	11
9	2	3
12	2	0
15	0	1
20	1	0
Postoperative hospitalization		
Months		
None	1	0
1	1	1
2	3	2
3	5	3
4	2	5
5	2	4
6	6	9
7	7	9
8	24	13
9	14	23
10	8	10
11	3	12
12	12	8
13	0	7
14	1	3
15	2	3
17	0	2
18	0	1
20	1	0
Functional result		
Satisfactory	90	114
Unsatisfactory	3	0
(Death)	(1)	(0)
Discharged to		
Duty	19	32
Temporary retirement	47	49
Permanent retirement	6	3
Other (civilians etc)	21	30
Follow up of cases (1956)		
No of case	93	114
No followed	87 (93 5%)	111 (97 3%)
Well	83	110
Gainfully employed	62	75
Full time	41	35
Active duty	17	29
Part time	4	11
Hospitalized	2	0
Persistent bronchopleural fistula	1	
Schizophrenia (tuberculosis arrested)	1	
Dead of disease (Patient with thoracoplasty)	0	1
Other deaths	2	0
Cerebral anoxia during surgery	1	
Train wreck	1	

It is apparent at a glance that our patients are, in the majority, young males, although a sizable number of older patients and women have been included Predominantly, our patients were afflicted with moderately advanced pulmonary tuberculosis according to National Tuberculosis Association standards A large proportion of cases were cavitary In every instance, tubercle bacilli were isolated to confirm the diagnosis either preoperatively or from a surgical specimen Preoperative and postoperative drug therapy consisted of combined administration of streptomycin and aminosalicylic acid or isoniazid, streptomycin being given every three days and aminosalicylic acid and isoniazid daily One may see from table 1 that earlier surgery was performed in the 1954 cases than in 1953

Surgical indications have been most exclusively the presence of residual necrotic disease The surgical procedures performed have been, in the majority, segmental resections, although a fair proportion of lobectomies and combined procedures have been done Secondary operations have been performed for complications and space problems Residual fine disease has been left at surgery in about 25% of the cases We do not feel that we can completely resect a patients tuberculous lesions We are interested in removing only the significant necrotic residuals, those that are cavitary or nodular and more than a few millimeters in diameter As far as complications are concerned, 65 of the 93 cases were uncomplicated in 1953 and 94 out of 114 in 1954 All but one patient recovered completely from his operative complication

Pathologically, an average number of smears, stains, and cultures were positive Disease removed was, in the main, moderately active Cavitary residuals were quite frequent Postoperative chemotherapy has varied with each case In general, we have aimed, however, at a minimum of one years drug therapy

Only three unsatisfactory functional results have occurred One patient has a persistent bronchopleural fistula and is still hospitalized In two instances, defective shoulder girdle action secondary to tailoring thoracoplasty was the problem, however, one of these patients is practicing law on a full-time status and one is on full duty in the Army No respiratory embarrassment or insufficiency occurred

The follow-up record for 1953 shows 87 patients (93 5%) have been contacted Of these, 83 are completely well and 62 gainfully employed Of the patients treated in 1954, 111 (or 97 3%) have been contacted One hundred ten are well, and, of these, 75 are gainfully employed Three deaths have occurred in the two years one from the effects of cerebral anoxia occurring during surgery, one from a train wreck, and one death a year after discharge in a patient with far-advanced bilateral disease for whom a thoracoplasty had been performed because of hemorrhage Recurrent exsanguinating hemorrhage occurred as a sudden terminal event one year after discharge

Comment

From a surgical point of view, in the type of patient we have encountered we have preferred to carry out exploration and resection initially, rather than perform a stage of thoracoplasty as the initial procedure In 1953, when a considerable number of tailoring thoracoplasties were performed, we felt that overdistention of remaining lung had a bad effect as far as respiration and recurrence of disease were concerned As there has been no significant recurrence or respiratory crippling, this has not been borne out clinically Since 1954, tailoring thoracoplasty has been performed only for the complications of surgery, such as persistent space, leak, or fistula This procedure has consisted of stripping the undersurface of the first rib, doing a modified apicolysis, and removing segments of ribs 2, 3, and 4 The transverse processes are preserved

We have been extremely reluctant to perform concomitant resection and thoracoplasty, as postoperative complications have been significant (11 complications in 13 cases in 1953 and 6 complications in 4 cases in 1954), furthermore, the postoperative courses have been more stormy because of paradoxical respiration and difficulty in raising secretions postoperatively

Particularly gratifying has been the increase in the number of uncomplicated cases over the two years (65 out of 93 in 1953 and 94 out of 114 in 1954) During this period, our staff was considerably reduced, indicating that an enthusiastic, qualified staff with excellent ancillary support in medicine, anesthesia, nursing, and physiotherapy can reduce complications

Persistent air leaks and space problems have occurred principally following segmental resection Seventy-five per cent of fistulas occurred after lobectomy All fistulas, leaks, and space problems were successfully treated, with one exception All other postoperative problems have been effectively corrected or overcome

It is apparent from this point of vantage that recurrence after resection has not been a problem Surgery in well-equipped centers is safe but still hampered by postoperative morbidity This has not been insurmountable, however It is obvious that patients can and do uniformly return to full activity when this plan of treatment is followed The comparison of these results with a follow-up study of similar patients treated solely with medical regimens will be most informative as data become available

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SURGICAL TREATMENT OF COARCTATION OF AORTA

REPORT OF THE SECTION ON CARDIOVASCULAR SURGERY, AMERICAN COLLEGE OF CHEST PHYSICIANS

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• *The life expectancy at birth of a patient with coarctation of the aorta is estimated at 32 years or less. Surgical correction requires the use of relatively uncommon and potentially hazardous techniques. Opinion is divided regarding the advantages of aortic homografts as compared with woven tubes of plastic fabric in bridging the defects left by resection of long coarcted segments. There were 138 operative deaths among 1,601 patients treated surgically. The most important cause of death was cardiovascular failure, second and third in order of importance were disruption of the anastomosis and hemorrhage. Mortalities were lower in the age group from 4 to 15 years than in the younger and older age groups. The over-all results were considered satisfactory in 96.3% of 1,405 patients from whom accurate data were obtained three months after operation.*

When a patient and his physician are faced with the problem of deciding whether to use a major therapeutic measure—surgical or medical—the decision is relatively simple if the following questions can be answered with reasonable accuracy. 1. What is the outlook without therapy? 2. What is the morbidity and mortality associated with the therapeutic procedure? 3. What are ultimate results following the measure under consideration?

With reference to the surgical treatment of coarctation of the aorta, the first question can be answered adequately, but the answers to the second and third have not been settled to date in the medical literature because of limited experience from the standpoint of time as well as from that of the total number of cases reported. The primary purpose of this report is to attempt to answer these questions beyond reasonable doubt, and the secondary purpose is to bring forth any information that may be helpful in improving the results obtainable. The report is based upon the latest possible follow-up study of 1,601 cases treated surgically by 36 of the 55 members of the surgical advisory committee to the subcommittee on cardiovascular surgery of the American College of Chest Physicians. The members of this committee are prominent cardiovascular surgeons practicing in representative areas throughout the world.

The Outlook Without Surgical Correction

The question of outlook for the patient with coarctation of the aorta not corrected surgically can be answered with reasonable accuracy. The average duration of life in 200 cases studied in 1928 by Abbott[1] was 32 years, and in an additional group of 104 cases reported subsequently in 1947 by Reifenstein and co-workers[2] it was found to be 30.5 years. As judged by Brown,[3] only one-tenth of patients live past the age of 50. In view of this rather dismal outlook, the need for a satisfactory method of treatment is obvious.

Mortality and Morbidity Associated with Surgical Correction

In 1945, Crafoord and Nylin[4] and Gross and Hufnagel[5] independently reported the feasibility of surgical correction of coarctation of the aorta. Although a fairly large number of cases has been reported in the medical literature since that time, a simple unqualified answer to the question regarding operative mortality and morbidity cannot be given. In dealing with an individual patient, we must consider such variable factors as age, the presence of associated correctable and/or uncorrectable defects, irreversible cardiovascular, renal, or central nervous system complications, and type of coarctation, as well as such factors as the experience of the operating team and the technique used. The information to follow should clarify considerably some of these uncertainties.

The over-all operative mortality rate, up to three months after surgery, in the 1,601 collected cases was 8.6%. It was most favorable, 6.8%, between the ages of 4 to 15 years. As one might expect, higher rates were present in the young and in the old. In the infant-to-3-year age group, the operative mortality rate was 16.2%, and in the group over 30, it was 11.3% (table 1).

TABLE 1.—*Operative Mortality Rates According to Age in 1,601 Collected Cases*

Age, Yr.	Cases, No.	Deaths No.	Deaths %
Infant-3	130	21	16.2
4-15	616	42	6.8
16-30	653	52	7.9
Over 30	202	23	11.3
Total	1,601	138	8.6

However, it must be appreciated that in the less favorable groups there was a higher incidence of uncorrectable associated defects and/or serious irreversible complicating conditions such as heart failure, renal impairment, and aneurysms. Operation before these conditions become irreversible, regardless of the age of the patient, should bring about a significant reduction in the mortality rates as well as improvement in results.

The causes of death with their incidence are given in table 2. By combining heart failure, pulmonary edema, shock, and cardiac arrest or ventricular fibril-

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Read before the Section on Diseases of the Chest at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956.

lation—all of which are related—it is apparent that 37.7% of the 135 operative, postoperative, and late deaths were due to these cardiovascular conditions.

Disruption of the anastomosis accounted for 22.4% of the operative and postoperative deaths. In 11 of the 28 cases, proved or probable infection was present at the operative site. In four additional cases postoperative subacute bacterial endarteritis developed; this may well have been an important factor, although the relationship was not specified in the answers to the questionnaires. Measures to minimize airborne contamination resulting from the long time of exposure of the wound, along with more intensive prophylactic postoperative antibiotic therapy, should serve to lessen this serious problem.

TABLE 2.—*Causes of Death and Their Incidence in 1,536 Cases of Coarctation of the Aorta*

	Operative and Postoperative	Late	Total
Heart failure, pulmonary edema, shock	30	3	33
Disruption of anastomosis	28	0	28
Cardiac arrest or ventricular fibrillation	18	0	18
Hemorrhage, operative	16	0	16
Cerebrovascular accident	4	1	5
Necrotizing arteritis	5	0	5
Embolism	3	0	3
Septicemia	3	0	3
Empyema	3	0	3
Atelectasis	3	0	3
Medullary ischemia	2	0	2
Coronary thrombosis	2	0	2
Rupture of aneurysm	0	2	2
Necrosis and thrombosis of anastomosis	1	0	1
Gastroenteritis	1	0	1
Drowning	0	1	1
Suicide	0	1	1
Unspecified	6	2	8
Total	125	10	135

Hemorrhage during surgery, usually from thin-walled, dilated intercostal arteries, was responsible for 12.8% of deaths in the operative and postoperative period. As the experience of operating surgeons increases, deaths from this technical cause as well as from disruption should decrease, particularly if this relatively uncommon and potentially hazardous procedure is not performed by an unnecessarily large number of surgeons.

A consideration of the remaining causes of death points out clearly that a significant number either were unrelated to the surgical procedure or were in part avoidable. Even without being optimistic about future improvement in mortality rates, the results to date seem to justify earlier and more widespread application of surgical treatment.

Remote Results Following Surgical Correction

Inasmuch as our experience dates back only to 1945, the question of the ultimate results following surgical correction of coarctation of the aorta can be answered only partially; however, the trends to date can be of definite help in advising our patients properly. With reference to the over-all clinical result obtained following surgery, accurate figures were supplied on 1,405 patients surviving the three-month postoperative period. The result was satisfactory in 96.3%. The effect on blood pressure was given specifically in 1,230 survivors (table 3).

Satisfactory relief of hypertension followed surgery in a total of 1,171, or 95.2%, of patients. Entirely normal readings were present in 72%, and in only 4.8% of patients did serious hypertension persist. The incidence of persistent hypertension increased progressively as the patient's age increased. Fifteen of the reporting medical advisors recommend the use of aortic homografts to bridge the defects left by resection of long coarcted segments, 11 prefer woven tubes of plastic fabric. The remainder were uncertain.

Conclusions

A study of 1,601 cases of coarctation of the aorta treated surgically by 36 members of the surgical advisory committee of the American College of Chest Physicians indicates that the over-all operative mortality rate was 8.6%. A satisfactory clinical result was obtained in 96.3% of the survivors. The most frequent causes of death and their respective incidences were as follows: (1) various cardiovascular complications, 37.7%, (2) disruption of the anastomosis, 20.7%, and (3) hemorrhage at the time of surgery, 11.8%.

The results obtained to date are good enough to justify general application of the surgical treatment of coarctation of the aorta. In the future, better results undoubtedly will be obtained by (1) operation before patients enter the advanced age group, (2) operation earlier in infants and young children, (3) more adequate management of serious associated defects, and (4) improvement, as a result of further experience, of management of the technical problems peculiar to the condition.

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TABLE 3.—*Effect on Hypertension After Surgery for Coarctation of the Aorta in 1,230 Patients Grouped by Age*

	Infant-3		4-15		16-30		Over 30		Unspecified		Total	
Age, Yr	No	%	No	%	No	%	No	%	No	%	No	%
Blood pressure normal	34	59.6	290	81.2	239	65.5	46	45.5	277	79.1	886	72.0
Blood pressure reduced, not normal	22	38.6	58	16.2	110	30.1	38	37.6	57	16.3	285	23.2
Hypertension persists	1	1.7	9	2.5	16	4.3	17	16.8	16	4.5	59	4.8
Totals	57		357		365		101		350		1,230	

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ILEOCOLITIS

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• *Regional ileitis may be associated with ulcerative or granulomatous colitis, the diagnosis depending upon the amount of fibrosis and scarring as well as the presence of giant cell systems and epithelioid cells Ileocolitis is a term used to indicate the presence of the combined forms, whose presenting symptoms are fever, cramps, and diarrhea Medical treatment should be attempted in all cases, unless there are definite indications for surgical therapy such as recurrent massive hemorrhage, recurrent bouts of intestinal obstruction, or persistent fistulas*

Ileocolitis is a term that has been loosely used to describe both specific and nonspecific forms of inflammatory disease involving the terminal ileum and proximal part of the colon Before 1930 practically all of these cases were considered as hyperplastic ileocecal tuberculosis because segmental colitis and regional ileitis were not known

Nonspecific ulcerative colitis was long recognized in its universal and distal forms since its original description in 1875 by Wilks and Moxon,[1] who named the disease after the gross appearance of the colonic mucosa It was not until 1930 that Bargen and Weber[2] described "regional migratory chronic ulcerative colitis,' a segmental type of colitis, which began in the proximal part of the colon and spread distally, usually sparing the lower sigmoid and rectum In both the universal and segmental types of colitis the terminal ileum is frequently involved by retrograde extension due to regurgitation of the infected colonic contents through an incompetent ileocecal valve This "backwash' ileitis is found in 24% of cases in universal ulcerative colitis, but the incidence is much higher in the segmental type, having been reported in 40% of 77 cases by Crohn, Garlock, and Yarnis[3] in 1947 It is important to note that the pathological process in backwash' ileitis is ulcerative and exudative in nature and confined to the mucosa and submucosa There is no evidence of the sclerosing granulomatous process characteristic of regional ileitis

Terminal ileitis was originally described in 1932 as a granulomatous disease limited distally by the ileocecal valve without involvement of the cecum or proximal part of the colon However, only two years later Colp[4] published a report of a case in which he resected a nonspecific granuloma of the terminal ileum and cecum Subsequently numerous case reports were published of extension of regional ileitis into the proximal part of the colon The highest incidence of colonic involvement in regional ileitis was reported in 1951 by Rappaport, Burgoyne, and Smetana,[5] who published a report of 100 cases of regional ileitis, with extension into the colon in 55 instances However, in many of these cases the granulomatous extension into the colon was minimal and could be detected only by microscopic technique In our experience granulomatous involvement of the colon in regional ileitis has not been common

The granulomatous nature of regional ileitis and the exudative inflammatory process of the typical case of ulcerative colitis is well recognized and undisputed However, there is much disagreement concerning the pathology of segmental colitis On the one extreme Warren and Sommers[6] regard these two diseases as morphologically different and deny the existence of granulomatous colitis On the other hand, Neuman and Dockerty[7] reported 25 resected specimens of segmental colitis in which there was a nonspecific granulomatous process producing a thickening of the entire colonic wall Wells[8] also published a report of cases of segmental colitis that he considered to be a colonic type of granulomatous ileitis and described the typical microscopic appearance of a granuloma with giant cells and epithelioid tubercle formation in the colon

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Read before the Section on Gastroenterology and Proctology at the 105th Annual Meeting of the American Medical Association Chicago, June 12, 1956

Brooke and Cooke[9] recently described a form of ileocolitis due to dysfunction of the small intestine, causing poor fat absorption and steatorrhea This produces superficial ulcerations in the ileum that gradually spread through the ileocecal valve to involve the colon It is important to recognize this type of case, because surgical intervention is invariably followed by diffuse recurrence due to the progressive nature of the disease

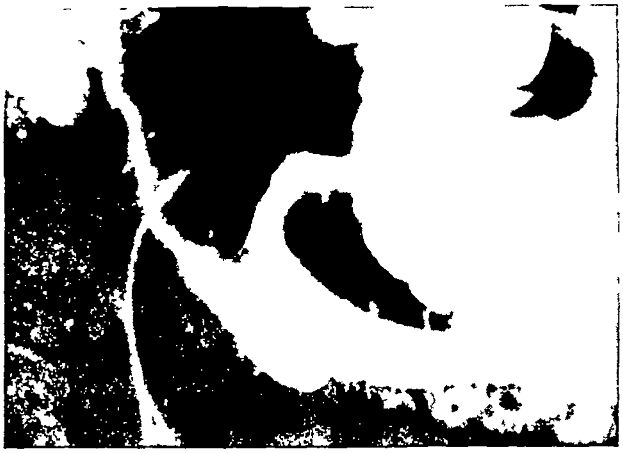
Fig 1 —Typical terminal ileitis with sinus tracts and fistulas

At the Mount Sinai Hospital in New York the pathologists have almost universally reported resected specimens of segmental colitis as ulcerative in nature Occasionally reports of cicatricial or hyperplastic colitis are encountered There have been only rare instances where regional ileitis was reported to extend into the colon It appears that the diagnosis of an ulcerative or granulomatous process depends upon the amount of fibrosis and scarring as well as the presence of giant cell systems and epithelioid cells Grossly the presence of skip areas in the colon and thickening of the colonic wall favor the diagnosis of granulomatous colitis In reviewing many of the specimens reported as ulcerative colitis, focal areas containing giant cells and epithelioid tubercles were found, so that both granulomatous and exudative inflammatory processes must be present in the same colon It is therefore apparent that in a small number of these combined cases the pathological process is occasionally granulomatous rather than ulcerative in nature Whether this deviation in pathology has any significance is problematical, but it is in this group of cases that the interpretation of the type of inflammatory process by individual pathologists has differed and caused confusion Certainly the clinical course is no different in one type than in the other

It therefore appears that regional ileitis may be associated with ulcerative colitis or "granulomatous" colitis In this paper we will use the term 'combined ileocolitis to signify the presence of granulomatous ileitis and ulcerative colitis When granulomatous ileitis is combined with granulomatous colitis the term "granulomatous ileocolitis" will be used Furthermore, the combinations of these two diseases may take place simultaneously (synchronous) or may occur in sequence (metachronous) Thus, if ileitis is designated as 'E and ulcerative colitis as C,' and granulomatous colitis as "G," the following variations may occur E, pure regional ileitis, C, pure ulcerative colitis, G, pure granulomatous colitis, EC, synchronous combined ileo colitis, EG, synchronous granulomatous ileocolitis, E plus C, primary ileitis to which later ulcerative colitis is added, and C plus E, ulcerative colitis that is later complicated by ileitis

The 60 cases of ileocolitis used in this paper are taken from our private office files and have been collected over a 26-year period, there are 58 cases of combined ileocolitis and only 2 cases that were reported as granulomatous ileocolitis However, five cases were included in the combined ileocolitis group because our pathologist reported the colonic involvement as ulcerative colitis, despite the presence of marked fibrosis and thickening of the wall It would appear that by many pathologists these colonic lesions would have been considered more consistent with the diagnosis of granulomatous colitis In 40 cases both ileitis and ulcerative colitis were present at the onset of the disease and the combined ileocolitis was therefore "synchronous" in origin In 18 cases either ulcerative colitis or ileitis was originally present but, after an attempt to cure the original disease by surgical intervention, the second disease developed This group of cases of combined ileocolitis may be called "metachronous" in nature, signifying that the combined diseases succeeded or followed each other There were two cases of granulomatous ileocolitis, one with extensive involvement of the colon including the rectum and the second with a granulomatous process localized to the ascending colon

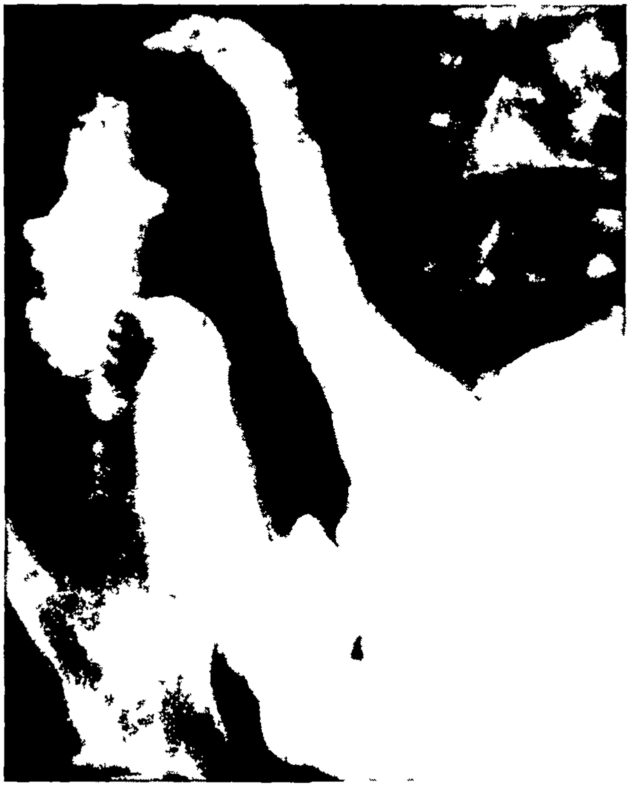
Fig 2 —Right-sided ulcerative colitis with involvement of terminal ileum (backwash ileitis)

Although ulcerative colitis and regional enteritis have different pathological pictures, they appear to be related diseases clinically, causing somewhat similar symptoms and occurring more frequently in the younger age groups There were 27 females and 33 males in our series of cases The most frequent onset occurred in the second and third decades, with the clinical course in two cases beginning at the age of 9 years However in one case a man was 70 years of age at onset

The anatomic distribution of the involved segments in ileocolitis may be so variable and heterogenous as to make an exact classification impossible For practical purposes the 42 cases of synchronous ileocolitis are divided into the following groups terminal ileum and ascending colon, 18 cases, terminal ileum and transverse colon 2, terminal ileum and distal part of colon, 5 terminal ileum and entire colon, including rectum 1, ileum, jejunum, and entire colon to sigmoid, 5, and terminal ileum and entire colon to sigmoid, 11 The 18 cases of metachronous ileocolitis are divided into two groups In 13 instances the primary disease was in the terminal ileum and, after an ileotransverse colostomy was performed for the cure of the original disease, ulcerative colitis developed In five cases the primary disease was ulcerative colitis involving the entire proximal part of the colon, excepting the rectum and sigmoid, in four of these cases granulomatous ileitis developed after subtotal colectomy and ileosigmoidostomy had been performed In one case an ileostomy was required after the original ileosigmoidostomy had been carried out After this the patient developed a granulomatous jejunitis and five years later a granulomatous ileitis

Fig 3 —Regional enteritis with granulomatous colitis to the hepatic flexure (granulomatous ileocolitis)

Roentgenographic

In each of the cases described above, regional enteritis was present, associated with an inflammatory lesion in the colon The characteristic findings of regional enteritis were unaffected by the inflammatory disease in the colon, whether ulcerative or granulomatous and presented the alterations described in various articles [10] consisting of narrowing of the intestinal lumen, rigidity, ulceration of the mucosa, inflammatory polyps, skip areas, fistulas, and separation of the involved intestinal loops due to thickening of the intervening mesentery and enlarged lymph nodes (fig 1) Marked stenosis of the distal part of the ileum associated with proximal dilatation was present in 16 cases In the majority of cases, the inflammatory process was confined to the distal part of the ileum In five cases a diffuse jejunoileitis was present In most cases the exact extent of the involvement of the ileum could be stated fairly accurately, however, in several cases numerous fistulas and sinus tracts resulted in matting together of the loops of intestine, and it was difficult to state, with any degree of accuracy, the exact extent of involvement It is important to differentiate regional ileitis from so-called backwash ileitis, which may be associated with diffuse ulcerative colitis or segmental colitis (right-sided ulcerative colitis) In backwash ileitis (fig 2) the narrowing of the intestinal lumen was not as marked as when there was granulomatous involvement The mucosa usually presented minimal ulceration, fistula formation was rare, skip areas were not seen, and marked separation of the intestinal loops was not

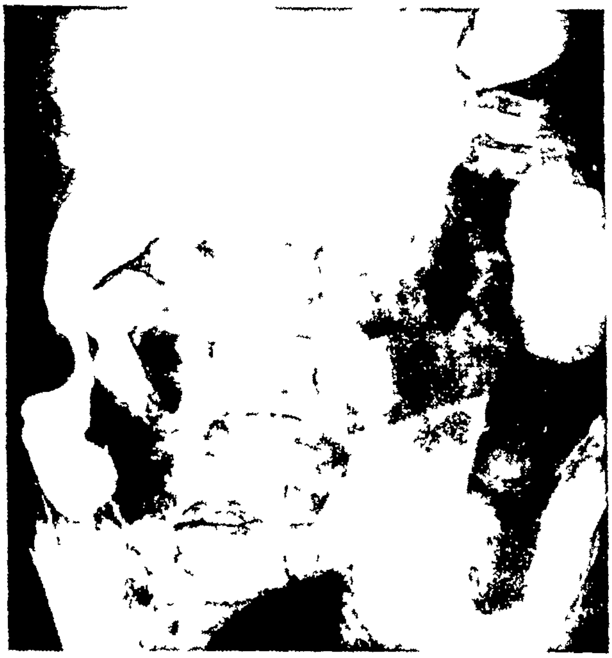

Fig 4 —Right sided ulcerative colitis with regional enteritis

usually observed In some of these cases, however, the ulceration of the mucosa was marked and considerable spasm with a "string sign,' such as has been noted in regional ileitis, was observed This finding was unusual, and the degree of narrowing and rigidity usually seen with regional enteritis associated with proximal dilatation was absent

Although the granulomatous nature of the lesion in the ileum could be identified fairly accurately, it was difficult to determine radiologically whether the alterations in the colon were ulcerative or granulomatous in nature In cases where there was an associated granulomatous colitis the findings in the colon were usually limited to a short segment that extended approximately to the hepatic flexure and strikingly resembled the lesion in the ileum, in that there was marked narrowing and rigidity (fig 3) Skip areas in the colon were occasionally observed Fistula formation and marked ulceration were uncommon in granulomatous colitis

When the lesion in the colon was diffuse, extending to the splenic flexure and mid-descending colon, the process was usually due to and resembled ulcerative colitis, in that there was slight to moderate rigidity and absent or distorted haustral marking (fig 4) Ulceration of the mucosa was more frequent with and without inflammatory polyps Shortening of the colon is a more common feature in ulcerative rather than granulomatous colitis Stricture formation can occur in both ulcerative and granulomatous disease In many instances, it was impossible to state the exact extent of the inflammatory process in the colon, and specific roentgenographic findings to differentiate ulcerative colitis from granulomatous colitis were not available It would appear reasonable to assume, in the cases in which typical regional ileitis is associated with involvement of a short segment of colon in continuity, that the colitis is granulomatous in nature, especially since the lesions in the colon have such a striking resemblance to the lesions in the ileum However, in the one case where there was a typical terminal ileitis associated with a diffuse granulomatous colitis, the x-ray appearance in the colon could not be differentiated from ulcerative colitis

In the colon, the exact termination of the disease could not always be determined At operation and pathologically, ulceration was present that was not seen radiologically Not infrequently on the roentgenograms, the lesions appeared sharply demarcated, however, pathological examination revealed further distal ulceration though to a minimal degree

Clinical Aspects

Fever, cramps, and diarrhea are the presenting symptoms of ileocolitis The fever is present during the active phases of the disease, with temperatures frequently ranging from 101 to 103 F (38 3 to 39 5 C), but in the acute cases with high toxicity they may reach as high as 106 F (41 1 C) Leukocytosis with polynucleosis corresponds to the fever, with leukocyte counts ranging from 12,000 to 16,000 per cubic millimeter and occasionally reaching 20,000 However, counts below 10,000 per cubic millimeter with a high polynucleosis and many young unsegmented polymorphs with toxic granulations are frequently found in the acute cases The sedimentation rate corresponds to the fever and leukocytosis but usually remains elevated during the afebrile periods until the inflammation completely subsides Foul diarrhea with or without bloody stools and cramps is usually present, but the tenesmus and rectal urgency found in universal ulcerative colitis are absent In four cases there was an absence of diarrhea and even constipation was noted Gross hemorrhage was present in nine instances and was massive, producing shock, in three cases Melena was noted in two cases

Anorexia and weight loss are progressive during the recurrences, and in extreme cases losses of more than 50 lb (23 kg) may occur, producing cachexia and malnutrition Glossitis, rhagades, and other signs of vitamin B deficiency are frequent Deficiency of vitamin K, causing prolonged prothrombin time, is found in the more severe cases Secondary anemia is consistently present, with hemoglobin levels ranging between 9 and 10 Gm per 100 cc Hypoproteinemia may be mild, with blood protein values up to 6 Gm per 100 cc, but in the more extensive cases the protein values may drop to 4 Gm, with a marked decrease in the serum albumin Nutritional edema was only occasionally observed Hypocalcemia and tetany were observed in only two cases Arthritis was present in 16 instances and usually involved the large joints An associated duodenal ulcer was present in five patients

An abdominal mass was palpable, usually in the right lower quadrant, in 24 cases Splenomegaly was noted in three instances, and clubbing of the fingers was present in four cases Erythema nodosum occurred five times in the lower extremities, and stomatitis with ulcerative pharyngitis twice Phlyctenular conjunctivitis was noted once Intestinal obstruction causing abdominal distention and fluid levels in the small intestine occurs rarely and usually subsides after intestinal intubation

Internal fistulas originating in the diseased terminal ileum and extending to the cecum and other parts of the colon, existed in eight cases, and in one instance a jejunoileal fistula occurred External fecal fistulas, opening on the anterior abdominal wall, complicated seven cases Four of these fecal fistulas were secondary to a perforated ulcerative colitis of the sigmoid, and two fistulas originated in the terminal ileum Rectal complications were frequent Perirectal abscesses and fistulas were present in 23 cases, 4 cases were associated with rectovaginal fistulas, and in one male there was a deep rectourethral fistulous tract

Medical Therapy

Medical treatment should be attempted in all cases of ileocolitis unless there are definite indications for surgical therapy, which will be discussed subsequently The essential part of the therapy in acute stages consists of supportive therapy, including bed rest, bland low-residue diet, fluids given intravenously, and plasma or blood administered whenever necessary Injections of crude liver extract and vitamins are also essential The insoluble sulfonamides and antibiotics such as tetracycline, dihydrostreptomycin, and neomycin are used to combat secondary infection Penicillin is of no value for the treatment of this disease and its complications However, steroid therapy has been of definite value and is especially effective in the acute stages of high fever and intoxication This is best administered in the form of corticotropin (Acthar) gel parenterally or in the newer long-acting zinc corticotropin preparations that need to be administered only once in 48 to 72 hours Once the desired improvement is obtained, the steroid therapy may then be continued with prednisone (Meticorten) or hydrocortisone (Hydrocorten) orally In many instances results of the oral use of steroids are disappointing because of their poor absorption One patient with diffuse disease of the small and large intestine made a remarkable recovery, gaining 30 lb (14 kg), and was able to resume his work as a mail carrier after treatment with corticotropin gel However he must continue a maintenance dose of 10 units of corticotropin gel daily to prevent the recurrence of his symptoms Another patient, 70 years of age, with high temperature, marked intoxication, and erythema nodosum of the legs became asymptomatic after six injections of corticotropin

Of the 18 patients treated medically, one is cured, 2 are well, 5 are improved, and 8 continue to have frequent recurrences and are in a chronic state of malnutrition One patient died at the age of 70, and one patient was lost to follow-up The patient who was cured had a typical terminal ileitis with concurrent involvement of the transverse colon He was treated with nonspecific protein shock therapy with use of typhoid vaccine given intravenously He made a dramatic response, and four years later x-rays revealed a normal mucous membrane throughout the entire colon and a slight distortion of the terminal ileum Now, 18 years after the original illness, the man is well

Surgical Management

In this series 42 patients were treated surgically, with multiple operations being required in most instances The surgical approach to the treatment of ileocolitis presents numerous and complex problems even to the most experienced surgeon In general surgical intervention is most successful where the disease is localized to the distal part of the ileum and proximal part of the colon and the patient has not responded to medical therapy Local palliative resections of stenotic diseased areas of ileitis and jejunitis are frequently necessary when intestinal obstruction exists Occasionally massive resections of the colon and small intestine have been necessary because of exsanguinating hemorrhage or progressive disease

Synchronous Ileocolitis —There were 24 cases of synchronous ileocolitis In 12 of these cases the disease was limited to the terminal ileum and ascending colon Ileocolic resection was performed in nine and a short-circuiting procedure (ileotransverse colectomy) in the other three instances Results were good in five cases and poor in six due to recurrent disease, and one patient died after a secondary resection

In the remaining 12 cases, one patient had an ileosigmoidostomy with transection of the ileum for terminal ileitis and transverse colitis, he is well and weighs 190 lb (86 kg) In two cases of terminal ileitis and proctitis an ileotransverse colostomy was performed, followed by progression of the colitis with perianal abscesses finally necessitating ileostomy In six cases, ileocolic resection and ileosigmoidostomy were performed for terminal ileitis and right-sided colitis Four of these patients required ileostomy after the rectum became involved One patient is improved, one is in poor condition due to recurrent disease

One case of terminal ileitis was associated with a granulomatous colitis involving the entire colon, including the rectum Exactly one year prior to the time of writing, a total colectomy and resection of the terminal ileum was performed at one stage, and the pathological specimen revealed typical granulomatous ileitis associated with a thickened colon containing giant cell systems and epithelioid tubercles, suggesting the diagnosis of granulomatous colitis, the patient made an uneventful recovery and gained 40 lb (18 kg)

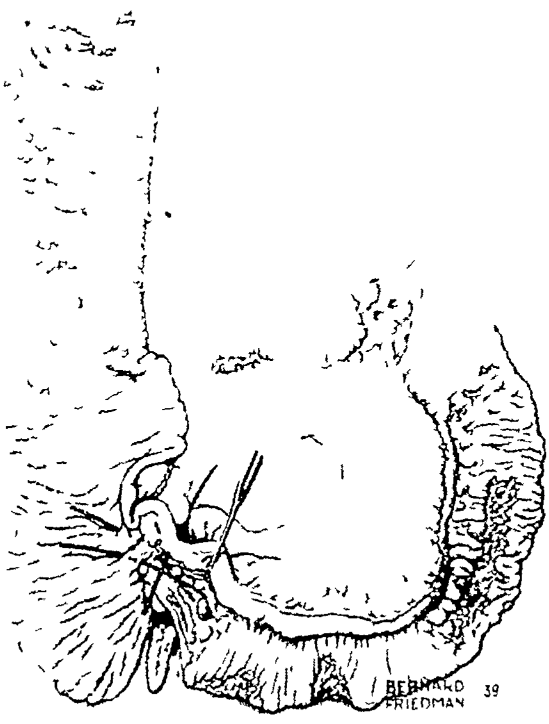

Fig 5 —Terminal ileitis with fistulas and skip areas Regional colitis with pseudopolyps

In two cases there was a diffuse ileojejunitis associated with an ulcerative colitis involving the entire colon excepting the rectum In one patient an ileosigmoidostomy and subtotal colectomy were performed However, he continues in poor nutrition with acute exacerbations of fever and diarrhea due to the residual ileojejunitis The second patient has been observed for 18 years and presents the life history of ileojejunitis and right-sided colitis with the gradual progression of the disease to involve the entire colon In this patient the clinical course began with a terminal ileitis and proximal colitis at the age of 20 years subsequently he developed a diffuse ileojejunitis with a gradual extension of the colitis to involve the entire colon, including the rectum Over the course of 16 years, multiple resections of the small and large intestine were performed, and at present he is left with an ileostomy situated 7 ft from the ligament of Treitz His serum electrolytes and hemoglobin are stabilized at normal levels His weight is constant, and he is restored to working efficiency A typical granulomatous ileitis was reported by pathological examination of the specimen, the ascending colon revealed a chronic 'hyperplastic and polypoid colitis (fig 5) The remaining parts of the transverse and descending colon including the rectum revealed a typical chronic ulcerative colitis

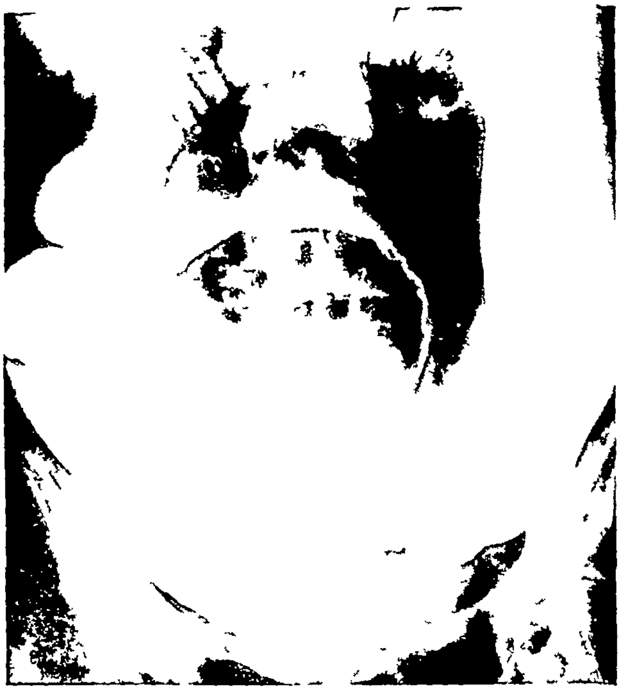
Fig 6 —Ileosigmoidostomy with recurrent granulomatous ileitis after resection for right-sided ulcerative colitis (metachronous ileocolitis)

Metachronous Ileocolitis—There were 18 cases of metachronous ileocolitis Thirteen of these began initially with terminal ileitis, and ulcerative colitis developed after an ileotransverse colostomy with or without ileocolic resection had been performed In one case the secondary colitis was restricted to the transverse colon and after a subsequent resection the patient was well A second patient after a short-circuiting procedure for terminal ileitis developed diffuse ulcerative colitis but his disease has been in a continuous remission for the past three years In two other patients who had an ileocolic resection for ileitis, results are fair due to a mild but persistent ulcerative colitis In one case death followed infection with clostridia, one patient was lost to follow-up The remaining seven patients who originally had terminal ileitis developed a subsequent ulcerative colitis after surgical intervention for the cure of the ileitis In all eight patients the subsequent ulcerative colitis has been severe, requiring ileostomy in three instances One of the latter cases began with a terminal ileitis when the patient was 28 years of age After an ileotransverse colostomy and subsequent ileocolic resection including 4 ft of diseased terminal ileum, there was marked improvement for seven years He then developed increased diarrhea associated with chills and fever, barium enema three years ago revealed ulcerative colitis involving the sigmoid and lower part of the descending colon Despite intensive treatment, including steroid therapy, his course was downhill, and resection of the entire distal part of the colon, including the rectum, was required for severe advanced ulcerative colitis causing massive hemorrhage At present the ileostomy drainage averages 3 liters, but the patient's weight is stabilized at 130 lb (59 kg) and his blood electrolytes are within normal range without intravenously given supplements

The other five cases of metachronous ileocolitis began with right-sided ulcerative colitis for which ileosigmoidostomy and subtotal colectomy were performed The resected terminal ileum in two of these cases was normal and in the other three cases presented the typical "backwash' ileitis Within five years a true granulomatous ileitis developed in four of these patients in the new termial ileum proximal to the site of the ileosigmoidostomy Of these four patients, two required subsequent ileostomy due to rectal complications and are well now The third patient developed mild proctitis and duodenal ulcer The fourth

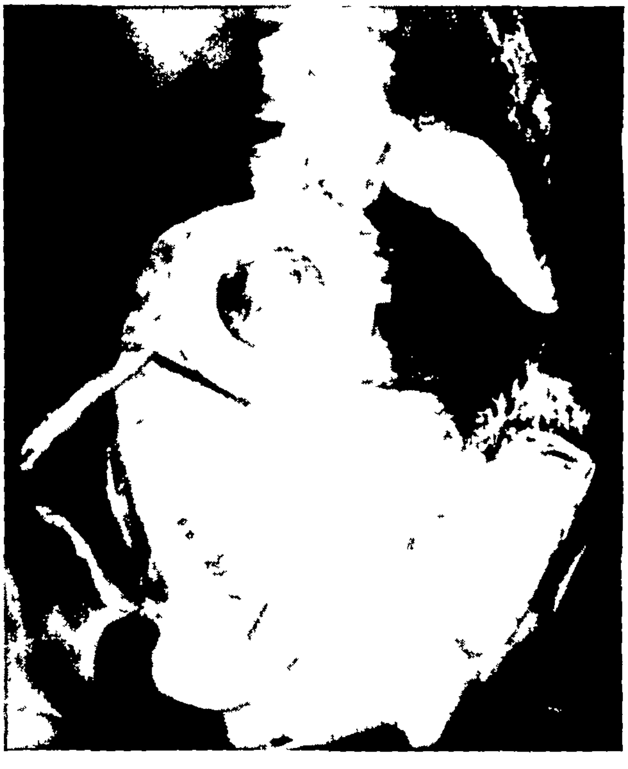
Fig 7 —Granulomatous ileitis with skip area proximal to ileostomy

case is significant because granulomatous ileitis recurred twice after resection for right-sided ulcerative colitis and yet the sigmoid and rectum are still perfectly normal This patient is now 28 years of age, at the age of 18 she underwent a subtotal colectomy and ileosigmoidostomy for right-sided ulcerative colitis with a fecal fistula to the abdominal wall Five years later she developed recurrent symptoms and radiographic studies (fig 6) revealed a typical granulomatous ileitis proximal to the ileosigmoidostomy, 46 cm of terminal ileum was resected and granulomatous ileitis with fistula formation was revealed She had a normal full-term pregnancy three years ago, however, during the eighth month of her second pregnancy she had a recurrence of fever and diarrhea, and at the time of cesarean section 16 months ago acute ileitis was seen proximal to the site of the anastomosis Because of recurrent intestinal obstruction, 18 in of granulomatous ileitis was resected three months ago The patient now weighs 115 lb (52 kg), has only three to four stools a day, and is an active housewife despite the presence of a high ileosigmoidostomy

The fifth patient, with a subtotal colectomy and ileosigmoidostomy for right-sided ulcerative colitis, developed proctitis requiring ileostomy At this time a segment of granulomatous jejunum 18 in in extent was resected Six years later she developed granulomatous ileitis involving the terminal 24 in of ileum immediately proximal to the site of the ileostomy (fig 7) Both the jejunitis and the ileitis were typically granulomatous, containing skip areas, and did not resemble the superficial ulcerative ileitis frequently seen after ileostomy This ulcerative ileitis is prone to occur when there is stenosis of the ileostomy stoma causing obstruction We have seen this complication five times In addition we have had two patients in whom ileostomy was performed who developed a severe necrotizing diffuse ileojejunitis with a fulminating course complicated by massive hemorrhage and having a fatal outcome within 48 hours

Prognosis and Results

Of the 18 patients treated medically, 3 are well and 5 are improved, but 8 are in poor condition, with frequent recurrences One patient died and one patient was lost to follow-up Results in the 42 surgical cases can be considered good in only 10 patients, 7 are improved, 20 are poor, 2 died, and 3 patients are lost to follow-up In 13 of the surgical cases, patients eventually required ileostomy As expected, the prognosis in the combination of these two severe inflammatory diseases is poor When the disease remains localized to the terminal ileum and small segments of the colon, the results are generally good Many of these patients in our series had complicated cases and had been referred to our office after previous unsuccessful attempts at medical or surgical cure

After 25 years of experience in handling these complicated cases of combined ileocolitis, one learns the value of a conservative medical approach Expectant therapy should be the treatment of choice unless there are urgent surgical indications such as recurrent massive hemorrhage, recurrent bouts of intestinal obstruction, or persistent fistulas We have found steroid therapy, especially in the form of corticotropin injection, of definite value in causing remissions and maintaining sustained improvement The best surgical results in our series were obtained when the patients had been observed for a long period of time and the disease remained localized to the distal part of the ileum and proximal part of the colon Recurrences have followed invariably when the patient was operated on during the diffuse stages and the surgeon was unable to delimit the segments of involved disease In the presence of diffuse disease, multiple resections of localized segments causing active symptoms will often bring about marked remission and slowly enable the remainder of the intestine to take over the absorptive function However, in some instances massive resections of the small and large intestine may be necessary, these are now possible with satisfactory results after preoperative preparation with multiple transfusions and antibiotics

In these confusing, complicated, often bewildering forms of combined disease (ileitis and colitis or ileocolitis), no absolute rule can be laid down for the approach to surgical therapy Every case must be considered on an individual basis, since there are so many various and so many possible combinations of the different factors Where medical therapy fails, where fistula formations, abdominal masses, perirectal abscesses, and fistulas persist, where gross massive hemorrhage or small obstruction of the small intestine supervenes, one has no choice but to ask for radical surgical interference And this in face of the fact that radical surgical intervention seems to offer little but amelioration and is so often followed by disappointing recurrences or by spread of the disease to new anatomic territories Medical cures or permanent cures under conservative therapy are very few

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CHANGES IN CIRCULATION CONSEQUENT TO MANIPULATION DURING ABDOMINAL SURGERY

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• *The cardiovascular responses to manipulation of the abdominal viscera were studied in 68 patients undergoing laparotomy The anesthesia most frequently used was nitrous oxide in combination with ether and other agents, and continuous recordings were made of the pressure in the brachial artery, the electrocardiogram, electroencephalogram, and intrathoracic pressure The common response, obtained in 55 patients, was arterial hypotension with or without bradycardia No one area or maneuver could be depended on to elicit this response It was not explained by purely mechanical factors such as occlusion of veins It appeared to be a reflex response to the stimulation of localized receptors, which must be assumed to be more frequent in the upper part of the abdomen and on the parietal, rather than the visceral, peritoneum*

During anesthesia for abdominal surgery, changes in blood pressure and respiration are frequently detected as exploration of the abdomen is performed The existence of such reactions has been known for a long time Ransohoff,[1] in 1908, was among the first to record changes in the blood pressure during manipulation of the upper abdominal viscera in man and in animals Recently, Reeve and co-workers[2] have accurately described the respiratory responses to the same type of manipulation The specific stimuli, areas responsive, and pathways of the supposed reflex response were described by these authors In our clinic, arterial hypotension that is coincident with the surgeon s initial exploration of the abdomen has been seen frequently In a one-year period, 92 patients, or 17 5% of 526 who underwent laparotomy, exhibited noticeable falls in blood pressure Although changes in the pulse rate were less obvious than falls in blood pressure, bradycardia was not an unusual finding Since these changes in circulation sometimes occurred in poor-risk patients, and could contribute to postoperative mortality and morbidity, we decided to investigate these phenomena more closely This paper is an account of our efforts to discern the frequency and magnitude of, as well as the stimuli responsible for the circulatory changes

Material and Methods

During the year 1955, whenever possible, patients undergoing abdominal surgery were studied for circulatory responses to abdominal manipulation Sixty-eight patients comprised the group studied, 38 were women and 30 were men All categories of physical status were represented (table 1) Information about the anesthetics given and the types of operations performed may be seen in table 2 The anesthetics were given intratracheally in most cases, and by anesthetists of varying experience

In all patients, continuous observation of the brachial blood pressure was made by means of a Statham P23D strain gauge[2A] attached to a 19-gauge intra-arterial needle, and the information was recorded on a direct-writing Sanborn twin-viso electronic recorder The base line of the recording was checked repeatedly for constancy by reference to the pressure of a water column maintained at heart level Mean arterial blood pressures were obtained electronically in most cases and, in a few, by planimetric integration under the arterial curve In 28 cases, lead 2 of the electrocardiogram was recorded simultaneously with the blood pressure recording Separate electrocardiographic tracings were taken in 22 other cases

Since the possibility existed that changes in circulation might be secondary to alterations in intrathoracic pressure, the recording of data on respiratory activity was followed by the recording of intraesophageal pressure Esophageal pressures approximate intrathoracic pressures The device employed was that recommended by Dr Jeremiah Mead, of Harvard University School of Public Health A plastic catheter, such as is ordinarily used for nasal administration of oxygen, was passed into the esophagus and connected to a Statham P23D strain gauge The pressures were recorded alternately with the electrocardiogram

Another possible explanation for the development of arterial hypotension lay in the increasing depth of anesthesia as surgical exploration was carried out. This is the time when maximal muscular relaxation is needed and anesthetic depth is greatest To make certain of the constancy of anesthetic depth, in 25 cases electroencephalographic monitoring of the level of anesthesia was carried out with fronto-occipital leads on a Grass electroencephalograph

The aforementioned recordings were started early in the course of anesthesia Correlations were made between changes in the records and activity in the surgical field When the peritoneal cavity was entered, a deliberate series of maneuvers was carried out to ascertain the effective stimuli and the areas respon-

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Read before the Section on Anesthesiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 14, 1956 sible for development of the expected circulatory changes Accordingly, the surgeon rubbed localized areas of the parietal and visceral peritoneum with a small ball sponge as discretely as possible Traction on the mesenteries, pressure in the area of the celiac plexus, traction on the gallbladder and stomach, and occlusion of the portal and caval veins were the other stimuli applied These stimuli had been implicated previously by others [7]

TABLE 1 —*Age, Sex, and Physical Status of Patients Studied for Abdominal Vascular Reflexes*

Age Group	Men	Women	Physical Status*			
			1	2	3	4,5 6
20-29	1	3	1	3		
30-39	1	2	3			
40-49	5	5	5	8	2	
50-59	9	8	9	6	7	1
60-69	13	10	4	12	6	1
70-79	1	8		3	6	
80 and over		2			1	1
Total	30	38	16	27	22	3

* Graded according to Saklad Anesthesiology 2 281 1941

Results

Blood Pressure—In 55 of the 68 patients studied, arterial hypotension was observed in relation to abdominal manipulation Only in one case was hypertension seen, and this during upper abdominal exploration in a patient undergoing a pelvic operation under spinal anesthesia Eleven patients showed a negligible drop in blood pressure

In the 44 remaining patients, hypotension was moderate to marked Systolic pressure falls were from 25 to 50% of the immediate prestimulation level The diastolic pressures likewise fell, but to a lesser degree Thus, the mean arterial pressures fell in 44 cases When measured electronically or planimetrically, the average fall in mean pressure in 26 patients was 53 mm Hg On the whole, the higher the initial blood pressure the greater was the relative fall in systolic, diastolic, and mean pressures It may be significant that there was a tendency for the hypotension to be more profound in the patient whose physical status was poor The maximum drop in blood pressure that was observed took place, with exploration, in a 58-year-old man who had essential hypertension and who was undergoing a partial hepatectomy and transverse colectomy for carcinoma The anesthetics consisted of nitrous oxide and ether, followed by deliberate induction of hypothermia to a level of 81 F (27 2 C) The blood pressure fell from 200/105 to 42/20 mm Hg in less than three minutes with manipulation

TABLE 2 —*Anesthetics Given and Operations Performed During Study of Abdominal Vascular Reflexes*

Anesthetics	No
Nitrous oxide, ether and combinations with other agents	34
Cyclopropane and combinations with other agents	15
Spinal anesthesia and other conduction anesthetics	13
Nitrous oxide thiopental and curare	4
General anesthesia and hypothermia	2
Total	68
Operations	
Gall bladder and common duct	31
Gastrectomy	3
Other upper abdominal operations	6
Abdominal vascular surgery	6
Lower abdominal (gynecologic and intestinal)	22
Total	68

Relation of Blood Pressure Changes to Nature of Stimuli—The manner in which hypotension was produced is interesting In some cases the change seemed to be clearly reflex in origin That is, with manipulation, with little likelihood of interference with venous return to the heart, and with no change in the depth of anesthesia or accompanying respiratory phenomena, the blood pressure began to fall within a matter of seconds, or within as few as five pulse beats A typical response may be seen in figure 1 A response of this type occurred with application of towels to the peritoneal margins in the incision, with stroking the parietal peritoneum of the anterior abdominal wall in a limited area, or with the initial insertion of the surgeon's hand into the abdominal cavity In some individuals these same stimuli failed to produce the effect The reflex fall of pressure in most cases amounted to 20 mm Hg systolic and 6 mm Hg diastolic over a period of 8 to 15 pulse beats and was transient even if the initial stimulus was continued Repeating the stimulus in another area reproduced the same response The most sensitive areas in this regard were the anterior parietal peritoneum of the upper abdomen, whereas the surfaces of liver, stomach, and viscera were insensitive

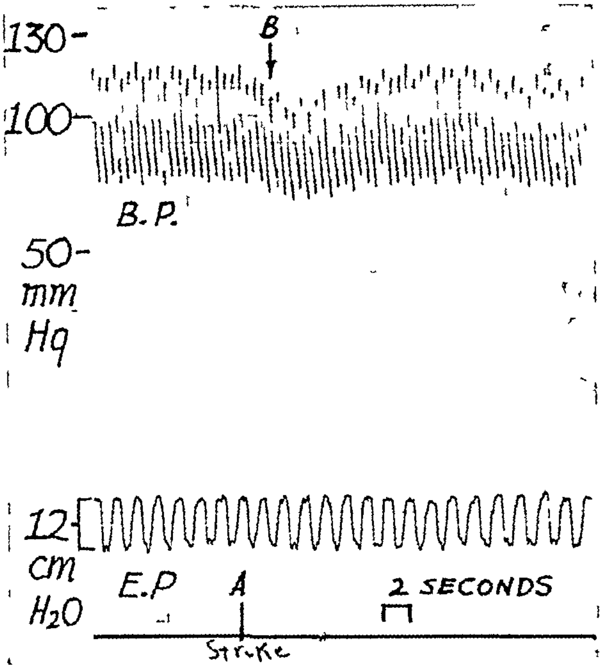

Fig 1 —Continuous arterial blood pressure (upper tracing) and esophageal pressure (lower tracing) in 52-year-old woman undergoing cholecystectomy with nitrous oxide and ether At *A* parietal peritoneum of upper anterior abdominal wall was stroked with small ball sponge Within two seconds, *B*, systolic and diastolic pressures fell Maximum fall was 15 mm Hg systolic and 5 mm Hg diastolic Duration of hypotension was eight seconds There was no change in esophageal pressure

In other cases, although a reflex fall in blood pressure seemed likely, contributing factors could not be eliminated. The fall in blood pressure was of greater magnitude, more prolonged, and failed to return to the previous level in these cases. A step-wise drop in pressure, shown in figure 2, was detected in some of the records. Where the hypotension was marked and persistent and a threat to the patient's welfare, we found that the intravenous injection of atropine was beneficial if the pulse rate was slow. Various measures, such as decreasing the depth of anesthesia, administering sympathomimetic amines, and refraining from surgical activity, brought the pressure back to safe levels in the cases in which the pulse rate was not slow. Displacement of the liver, insertion of the hand into the peritoneal cavity and movement of the hand from one area to another, placement of packing, evisceration, and retraction of the wound edges produced hypotension. Deliberate traction on the mesenteries of the intestine and stomach failed to produce hypotension in several cases. Likewise, stimulation of the celiac plexus was ineffective. Clamping the gallbladder wall and applying traction on this viscus failed, but, even with care taken to avoid obstructing the portal and caval veins, exploration in the common duct region produced a marked response. Of eight patients in whom the vena cava was occluded, four showed no effect and four showed minimal changes.

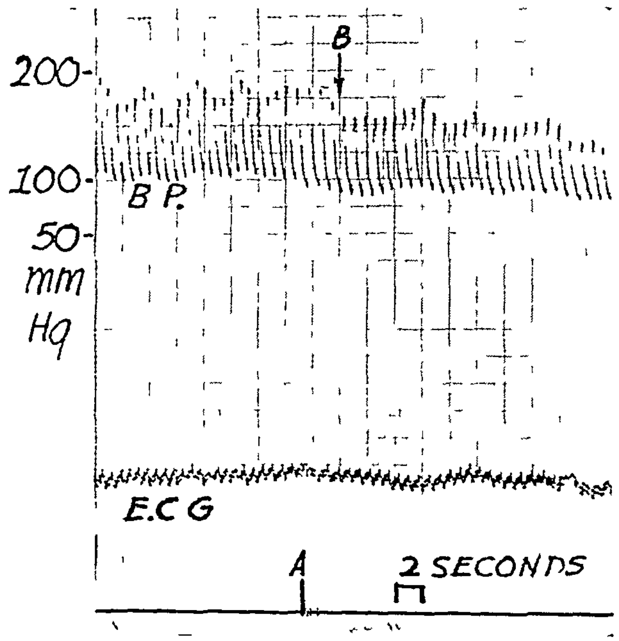

Fig 2.—Continuous arterial blood pressure and electrocardiographic recordings in 70 year-old woman undergoing cholecystectomy and exploration of the common bile duct with nitrous oxide ether, and curare. At A, a hand was inserted in abdominal cavity. Blood pressure fell within two seconds and continued to fall in step-wise manner. There was no change in electrocardiogram.

Electrocardiographic Findings.—The electrocardiographic changes observed from the analysis of lead 2 were by no means as frequent or uniform as the changes in blood pressure. Of the 50 patients studied, 17 exhibited auriculoventricular dissociation with nodal rhythm, or nodal rhythm alone. These abnormalities were associated with a variety of factors in most cases, principally, deeper levels of anesthesia and abdominal manipulation. Practically all were coincident with arterial hypotension. Ether was the common anesthetic agent. More specifically, changes in the pacemaker were coincident with intubation of the trachea, the hypothermic state in two patients, and arterial hypotension under spinal anesthesia. Whether the changes in the pacemaker were reflexly produced, secondary to a decrease in coronary arterial blood flow, or partially responsible for the hypotension cannot be stated.

It would be significant, from the standpoint of explaining the reflex origin of the hypotension, if slowing of the pulse rate and bradycardia were commonly seen. Actually 22 patients evinced a slowing of the pulse rate, 27 showed no change, and 6 responded with an increase. In some cases, slowing of the pulse was coincident with hypotension, in other cases, slowing of the pulse followed hypotension. In all of these the changes took place with manipulation. The pulse rate changes lasted as long as the hypotension. The minimal slowing was 10 beats per minute, with a maximum fall in rate of 36 and an average fall of 16. In five cases, the proportions of bradycardia were reached. The most marked slowing of the pulse took place in two patients with hypotension who were under spinal anesthesia. While bradycardia is a common phenomenon during spinal anesthesia, both the hypotension and change in pulse rate took place in response to a definite surgical maneuver. This suggests a sudden reflex alteration in the circulation, a phenomenon that has been well documented.[3d]

A decrease in the amplitude of the T wave and elevation or depression of the S-T segment were seen in 25 instances in association with manipulation and hypotension or, at other times, in the course of anesthesia and operation. In only one instance was the change pronounced enough to suggest myocardial ischemia. Bearing in mind that only one lead was under observation, this is still striking, in view of the magnitude of the hypotension seen in some cases. No instance of postoperative myocardial infarction was observed in the group studied, although routine electrocardiograms were not taken postoperatively to detect silent infarcts. Two individuals in whom electrocardiograms were taken postoperatively showed T wave and S-T segment changes not present beforehand.

Comment

The function of anesthesia is to block out undesirable reflex responses to surgical manipulation. Ordinarily this implies that the patient's reflex response to pain should be obtunded and that reflex changes in muscle tone should be minimized to provide relaxation. Despite the attainment of these objectives in most instances, other undesirable responses are responsible for many of the difficulties encountered during anesthesia. While skillful management and choice of agents can eliminate some of these, we are not certain that all can be eliminated In the respiratory sphere, breath-holding, bronchospasm, forced expiration, laryngospasm, and hiccough can be troublesome responses to surgical activity, particularly if a light plane of anesthesia is desired Circulatory responses may follow those of the respiration or be elicited purely as arterial hypertension, hypotension, or changes in pulse rate and rhythm We have chosen to study the adverse circulatory response to intra-abdominal manipulation because of its common occurrence and possible relation to postoperative complications

The common response to intra-abdominal manipulation was arterial hypotension, often associated with bradycardia The large percentage of patients with hypotension found in this study contrasts with the usually observed clinical incidence The difference is due, probably, to the methods employed to detect circulatory change Our general impression about hypotension occurring in response to manipulation is that it is solely reflex in nature in some cases and is accentuated by additional factors in others Although hypotension was elicited without change in the depth of anesthesia, as evidenced by the electroencephalograph, the greater the depth of anesthesia the more profound was the fall in pressure We could discern little difference in effect among the various anesthetics employed, though the series was heavily weighted with cases in which ether was used Too few spinal and local anesthetics were employed to allow speculation as to the reflex pathways involved Work is continuing in this sphere, both in man and in laboratory animals The circulatory changes were not related to changes in intrathoracic pressure A great many different stimuli have been implicated in the genesis of these changes Mesenteric traction, celiac plexus stimulation, common bile duct manipulation, and occlusion of the great veins have been mentioned[4] It must be conceded that in few of these prior studies had care been taken to avoid simultaneous stimulation of other receptor zones We cannot provide statistically valid evidence to show which stimulus or which area of the abdomen stimulated may be most responsible The impression gained is that tissue deformation is the basis of all stimuli, that the parietal peritoneum is far more sensitive than the visceral, and that that of the upper abdomen is particularly sensitive It is probable that a fairly limited receptor zone may be responsible in all situations where hypotension is elicited This is suggested further by the work of Reeve and his associates[2] on respiratory responses to manipulation Apnea and laryngeal closure followed intra-abdominal stimulation most frequently when the anterior parietal peritoneum of the upper part of the abdomen was involved

The circulatory response had the characteristics of a reflex The work of others[5] confirms this impression One can only speculate about the receptor, the pathways involved, and the circulatory alterations resulting A likely receptor is the Pacinian corpuscle, which in lower animals and man has a general distribution in the parietes and mesentery[6] The histological appearance of the corpuscle suggests that it may be responsive to deformation[7] Gammon and Bronk[8] recorded an increase in electrical discharges in the afferent nerve of the corpuscle, an increase coincident with the pulse wave in adjacent mesenteric blood vessels It was suggested that the role of the corpuscle is one of local vascular regulation It may be of interest, in this connection, to note that the cardiac arrhythmias associated with cyclopropane anesthesia have been ascribed to reflex action originating in the base of the mesentery[9] The work of Reeve on respiration suggests that the afferent pathway for the circulatory reflexes might be the intercostal nerves, especially if the parietal peritoneum is the sensitive area Further work in laboratory animals and in man must be carried out to assay the role of the phrenic nerve, splanchnic nerves, and vagus nerve in the carriage of afferent impulse from the abdomen Lastly, it seems likely that the vagus nerve forms the efferent limb of the reflex arc and that this alone might be responsible for the hypotension observed The occurrence of bradycardia suggests this, and Peterson[5a] has recently reviewed the evidence to suggest that the vagi may affect ventricular contraction as well Analysis of the pulse wave contour provided some clue as to the circulatory adjustments involved In figure 3 it can be seen that during hypotension there is a flattening of the wave, suggesting a decrease in cardiac output rather than a decrease in peripheral resistance The change in output could be a manifestation of lesser venous filling or decreased cardiac contractility Additional circulatory measurements are required to establish the specific nature of the changes

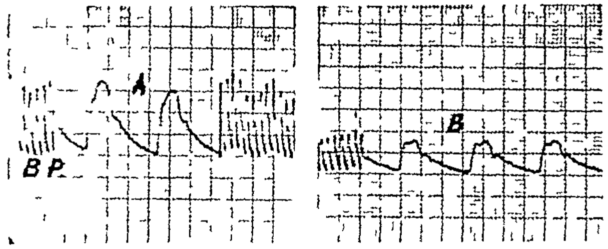

Fig 3—Tracing from the same patient as in figure 2, showing pressure pulse contours *A*, before and, *B* after production of hypotension by intra abdominal manipulation Paper speed has been changed to illustrate the change more clearly Decrease in pulse pressure occurred without change in duration of systole or position of the dicrotic notch This suggests a decrease in cardiac output rather than change in peripheral resistance

The clinical implications of these findings seem clear While we discovered no instance of permanent vascular damage, the magnitude and frequency of the fall in blood pressure indicate that this vascular response may be a real threat to the patient in poor physical status Mendelsohn and Monheit[10] have recently reported a study similar to ours, but one in which more threatening electrocardiographic changes were observed Four patients in their series sustained silent myocardial infarctions It should be added, however, that most of their patients were undergoing gallbladder surgery because of associated heart disease

Summary and Conclusions

The common response to intra-abdominal manipulation during surgery found in this study was arterial hypotension, accompanied by slowing of the pulse rate in most instances These changes were detected in 55 of 68 patients studied by means of recording of intra-arterial and esophageal pressures, electrocardiograms, and electroencephalograms The circulatory alterations had the characteristics of a reflex they seemed to be more profound in the poor-risk patients and were enhanced by deeper levels of anesthesia Further work must be directed toward discovering the means to eliminate these circulatory responses, either pharmacologically or with specific anesthetic agents and techniques

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PLASMACYTOSIS AND CRYOGLOBULINEMIA IN CANCER

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• *Cryoglobulinemia in the case here described lasted only a few weeks, and the intense peripheral plasmacytosis lasted only two or three days The patient repeatedly developed well defined wheals in response to five second applications of ice cubes to the skin This urticarial reaction was not obtained in normal subjects, and it was absent in this patient after a radical mastectomy was done to remove an adenocarcinoma The cryoglobulinemia ceased at the same time The evanescent character of these phenomena and their timing with respect to the development of tumors in this patient suggested that they might be interpreted as phases of an immune process in cancer*

It has become apparent in recent years that the phenomena of (1) plasmacytosis, (2) hyperglobulinemia, (3) cryoglobulinemia, (4) amyloidosis, (5) hypersensitivity, (6) collagen diseases, and (7) multiple myeloma are somehow interrelated Some of the relationships that exist among them I have discussed elsewhere,[1] and no more than a summary listing of the principal features will be given here These include the experimental relation of plasma cells to immune body production [2], plasmacytosis in human hypersensitive states [3] and in collagen diseases and the relation of these to hyperglobulinemia [4], and hyperglobulinemia in multiple myeloma, amyloidosis in multiple myeloma [5] and in hypersensitivity states,[1b] and cryoglobulinemia in multiple myeloma and in hypersensitivity states [6] No single feature of this evidence may in itself be weighty, but the combined evidence is striking Somehow these conditions belong together and have a common pathogenic factor or factors as yet unknown Certainly they are all concerned with the broad general concept of immune processes

The relation of multiple myeloma to the other members of the group is a little more evident than the other relationships Apparently the neoplastic plasma cells of this disease are as capable as non-neoplastic plasma cells of producing globulins in excess and of entering into the production of cryoglobulins and amyloid

Every list of the "causes" of plasmacytosis,[7] hyperglobulinemia, or amyloidosis exhibits prominently the various allergic diseases and the collagen diseases There is also a group of miscellaneous rare diseases Practically every such list, however, shows an important group that makes up about 10% of cases or a little less, this is the group of malignant tumors My findings in this group are based on unpublished data on 73 cases of amyloidosis and 7 cases of malignant

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Read before the Section on Pathology and Physiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 12, 1956 tumor (exclusive of multiple myeloma) In addition, there were several cases of patients with malignant tumor who also had infection or an allergy, such cases were not counted with the malignancy cases Lately, also, an association between malignancy and collagen diseases, especially dermatomyositis and scleroderma, has been suggested [6]

It is possible that the relationship between tumors and the group of phenomena mentioned above is fortuitous or through mechanisms of entirely unrelated kinds But it cannot be denied that there exists in patients with neoplasms something that in the broadest sense must be called immunity [8] It seems desirable, therefore, to explore this possible relationship between immunity in cancer and the other phenomena associated with immunity The case cited below affords a striking illustration of the directions in which such exploration could take place

Report of a Case

A 68-year-old woman went to her physician on Feb 16, 1954, because she thought she had a lump in her left breast He failed to find one and noted that she had no abnormal signs or symptoms She had been hypertensive for at least 15 years, but at the time of her examination her blood pressure was 130/70 mm Hg Two weeks later she reported she had passed a good deal of blood through her rectum Proctoscopic examination was negative except for clotted blood that was seen high up in the sigmoid Six days later the patient had a cold and fever Her lungs were edematous, and she was thought to be in acute heart failure Antibiotics were given

A few days later, on March 12, 1954, she entered the hospital X-ray examination showed pulmonary congestion and cardiomegaly with 25% enlargement There was a single density in the first anterior rib A barium enema and air contrast studies revealed no organic disease of the colon The hemoglobin level was 8 Gm per 100 cc, with red blood cells numbering 4,720 000 per cubic millimeter and white blood cells 13,150 per cubic millimeter, comprising 40% neutrophils, 44% lymphocytes, and 4% eosinophils A few of the lymphocytes were called Turk s irritation cells With therapy with mercurial diuretics the patient improved and went home in nine days

She entered the hospital again on Sept 28, 1954 She had been in good health until she had caught a cold while on a trip She had a sore throat, running nose, and nonproductive cough She was given one injection of penicillin and some sulfonamides The patient was in mild heart failure Her abdomen was somewhat distended The liver was four fingerbreadths and the spleen two fingerbreadths below the costal margin There were small shotty lymph nodes in the anterior cervical chain and a single firm discrete node in each axilla A firm, but not hard mass 2 cm in diameter was found in the mid-upper part of the left breast

On Sept 27, the day before her second entrance into the hospital, the patient s white blood cell count had been 27,000 per cubic millimeter, with a preponderance of lymphocytes many of which were said to have been abnormal On Sept 29, her white blood cell count was 53 600 per cubic millimeter, with 42% of the cells typical plasma cells, numbering 22,500 per cubic millimeter An additional 6% of the cells (3,200 per cubic millimeter, which is about normal) were normal lymphocytes The red blood cell count and hemoglobin level were normal The platelet count was normal, numbering 320,000 per cubic millimeter An examination of the iliac crest bone marrow on the same day showed a large number of plasma cells in an otherwise normal marrow

Blood studies on the same day disclosed that the level of total proteins was 7 5 Gm per 100 cc, serum albumin, 3 8 Gm per 100 cc, and serum globulin, 3 7 Gm per 100 cc Gamma globulin was 1 33 Gm per 100 cc, the normal for the chemical method employed being 0 71-1 14 Gm per 100 cc The levels of nonprotein nitrogen, uric acid, and glucose, as well as the icterus index, were normal The blood serum was described as slightly lipemic An electrophoretic pattern was not available at that time Gross inspection of the excess serum, which had been in the icebox overnight, showed a whitish precipitate occupying the lower third or less of the test tube (fig 1) The association of plasmacytosis with a precipitate in the cold serum suggested a cryoglobulinemia When the cold serum was warmed to 37 5 C, all but a trace went back into solution, when cooled, precipitation again occurred Tests during the next several days, during all of which cryoglobulin was demonstrable, showed that it was necessary to collect serum in warmed syringes and test tubes and to keep it warmed to 37 5 C if precipitation were to be avoided If these precautions were not taken, a precipitate was noted almost immediately, if they were, the serum was perfectly clear and not lipemic

The urine contained a faint trace of albumin Repeated examinations failed to show any Bence Jones protein, and this absence continued Cold agglutinins and autoagglutinins could not be demonstrated The Coombs test was negative Reexamination of the x-rays elicited the opinion that the so called rib lesion noted on the patient s first entrance to the hospital in March, 1954, had really been in the lung and had cleared up There were no lesions in the skull or spine

The patient was questioned concerning skin lesions and reaction to cold She revealed that 40 and again 20 years before she had had attacks of "hives" which she related to eating peaches and which apparently were not associated with cold For a few days before her second entrance to the hospital in September, 1954, she had had a hives-like eruption on the upper arms and at the margins of the breast, which was present only in the morning and disappeared during the day She also had noted (when asked if cold caused her any trouble) that cold water or other cold liquids gave her difficulty in breathing and a sense of pressure behind the upper sternum and that these symptoms were relieved by drinking warm water Because of this, she said, she always kept herself warm and ate only warm foods The morning after this history was obtained an urticarial rash appeared and was photographed It was more extensive than it had been before, being present also on the lower thighs and knees (fig 2)

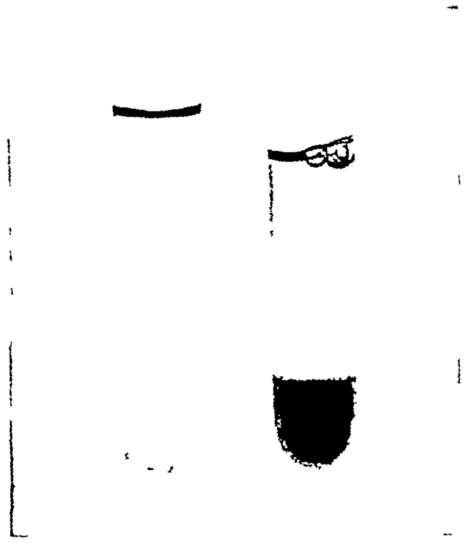

Fig 1 —Cryoglobulin in blood serum In the tube on the right, a precipitate is present after refrigeration In the one on the left, a similar precipitate has been dissolved by warming to 37 5 C

The next day, Oct 1, the patient s white blood cell count was down to 24,900 per cubic millimeter, and fewer cells were plasma cells On Oct 4, the white blood cell count was 17,300 per cubic millimeter, with almost no plasma cells After that time, no plasma cells were found and none were seen during any of the very many blood examinations taken in the following 18 months

On Sept 29 a cold skin test was taken in the following way A cylindrical ice cube was pressed against the skin of the anterior surface of the patient s forearm for five seconds only

Within two minutes a well-defined wheal exactly the size of the ice cube appeared, followed by the appearance of ameboid streamers outward at the periphery (fig 3) The test was repeated several times during the following few days, and it was consistently positive in the patient The same test performed on a large number of persons, both male and female, failed to elicit any reaction except, in one case only, a faint redness Previous tests of this sort have used longer application times up to one or two minutes, and have because of this, been more difficult to interpret More reactions are obtained in normal subjects with these longer times but such reactions frequently consist of redness rather than urticaria

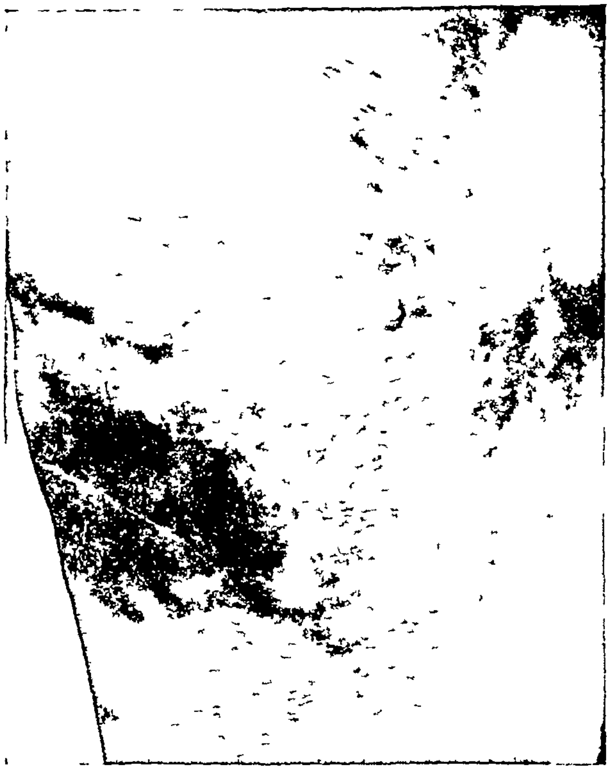

Fig 2 —Urticaria, anterior surface of knee The rash was present on successive mornings but disappeared by early afternoon

On Oct 1 biopsy specimens of the breast lesion and of a left axillary lymph node were taken The breast lesion was an adenocarcinoma the lymph node showed no evidence of tumor but did show a moderate plasmacytosis A gingival biopsy specimen taken at the same time showed no evidence of amyloidosis On Oct 11 a radical mastectomy was done No more tumor tissue was found either in the breast or in axillary lymph nodes Plasmacytosis was much less marked than at the time of the biopsy Cryoglobulins were found all during the patient's stay in the hospital She was discharged on Oct 17 The next examination for the presence of cryoglobulins was two and one-half months later none were found Coincidently with this the application of ice to the skin no longer elicited urticaria For the next 16 months the patient was well and repeated examinations for cryoglobulins Bence Jones protein, and plasmacytosis, made at three to six month intervals, were negative

On April 15 1956 the patient entered the hospital with evidence of an intestinal obstruction On May 7 an adenocarcinoma of the sigmoid was removed The lymph nodes showed no evidence of carcinoma and only a mild plasmacytosis There was no peripheral plasmacytosis, and the bone marrow was normal Blood proteins were normal On one occasion, several days postoperatively, there was one mild attack of urticaria On May 16 she had an eruption on the skin that resembled erythema multiforme On that day an ice cube test on the skin was negative On that day and the next there was a very small amount of cryoglobulin demonstrable, but on the following day it was gone

Comment

Every pathologist is aware of the frequency with which a small malignant tumor is surrounded by a zone of lymphocytes and plasma cells that separate the tumor from deeper normal tissue Kidd[8] has shown in transplanted tumors that the ability of a transplant to penetrate deep into surrounding tissues and to spread and metastasize is correlated in his animals with the disappearance of the lymphoid cells In the broadest sense of the term this plasmocellular barrier may be called an immune process For a long time it has been thought that immune processes in malignant tumors may be entirely different from those already known for inflammatory disease and against foreign proteins Observations that relate malignancy to plasma cells and globulin metabolism should, however, revive the hope that immunity in cancer has some, at least, of the features of other immune mechanisms and may, therefore, be susceptible to the similar methods of attack

Most studies of plasmacytosis and cryoglobulinemia have indicated that these states generally last a considerable time The case of cryoglobulinemia described by Steinhardt and Fisher,[9] which they were tempted to call essential cryoglobulinemia because no underlying disease state was found, lasted over three years My case is notable for the short duration of these phenomena—weeks for the cryoglobulinemia and two or three days at most for the very intense peripheral plasmacytosis On the appearance of the patient's second carcinoma a small amount of cryoglobulin was present for only two days Plasmacytosis has been thought of as an unusual phenomenon and, in the large

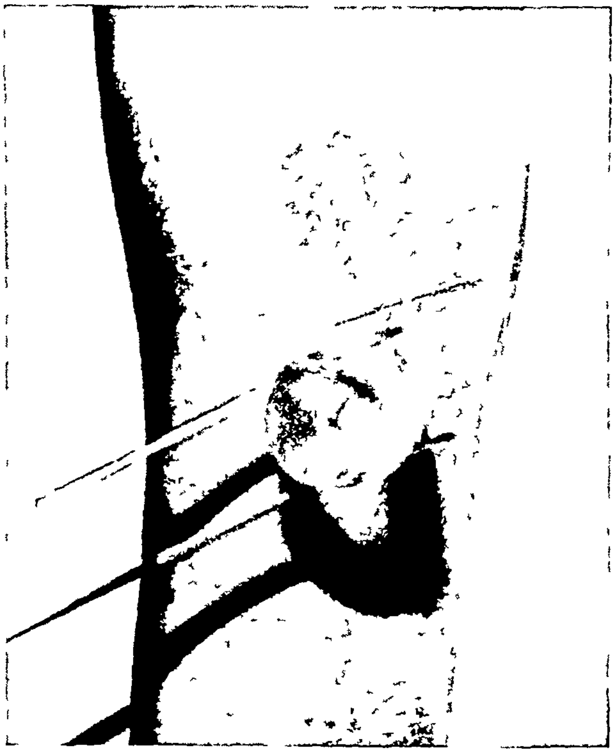

Fig 3 —An induced urtica on the anterior surface of the forearm after application of ice for five seconds

amounts in the peripheral blood of my patient, a rare finding, cryoglobulinemia has up to now been seen only rarely If, however, they may be as evanescent as in the present case, may we physicians not be dealing with phenomena that seem to be uncommon only because they are easily missed? Certainly it was luck that enabled me to pick out the three days of this patient's plasmacytosis and obtain the peak determination One cannot often expect to be so lucky in a chronic disease

There can be no relationship between the plasmacytosis and the removal of the cancer, since the plasmacytosis had disappeared before the tumor was removed There is less certainty about the relation of the mastectomy to the disappearance of the cryoglobulinemia Only repeated observations on other cases will determine this

Summary and Conclusions

A case of cryoglobulinemia and very marked peripheral blood and bone-marrow plasmacytosis was seen in a patient whose only other apparent disease was a small carcinoma of the breast The principal symptomatic manifestations of the cryoglobulinemia were urticaria that was present only in the morning and intolerance to cold and the swallowing of cold fluids The urticaria could be induced at the site of application of ice to the skin These manifestations lasted only for short times, the cryoglobulinemia disappeared some weeks after mastectomy, the plasmacytosis lasted only three days and had disappeared before the operation The relation of cryoglobulins and plasma cells to immune processes should be considered, and there may be a relation between these and similar factors to what may broadly be called immunity in cancer The demonstrated evanescent or short-lived character of these phenomena in one case suggests the possibility that they may not be so uncommon in cancer as well as in other conditions, as has been supposed and that it may be worthwhile to look for both cryoglobulins and plasma cells by frequent examinations

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Digitalis Overdosage—The arrhythmias resulting from digitalis overdosage usually disappear spontaneously, if the drug is discontinued Treatment for arrhythmias is ordinarily not necessary If digoxin was used, they disappear within two to three days, if digitoxin was given, the arrhythmias may persist for from two to three weeks In some instances of supraventricular tachycardias, ventricular premature beats, or ventricular tachycardias induced by digitalis, however, specific treatment may be needed In these cases, the oral administration of potassium chloride, acetate, or citrate usually eliminates the arrhythmias within 30 minutes Two to 10 grams of a 20 per cent solution may be given in syrup of citric acid or Karo syrup, or smaller quantities may be given in milk, orange juice, or ginger ale Administration of 5 to 10 cc of Potassium Triplex (Eli Lilly) in orange juice (5 cc contains 0 5 gm each of potassium acetate, potassium citrate and potassium carbonate) is also efficacious, but its effect lasts only for from two to four hours The treatment may, therefore, have to be repeated Toxic effects due to the potassium do not occur, if there is adequate urinary excretion Rarely is it necessary to administer potassium intravenously, if it is, extreme caution should be used, and only 0 5 to 1 5 gm should be given slowly Electrocardiograms should be taken frequently, to detect potassium intoxication Its most common effect is marked peaking of the T-waves, widening of the QRS complexes, and disappearance of the P-waves That potassium depletion may sensitize the myocardium to the toxic effects of digitalis has recently been proved Conversely, the presence of adequate cellular potassium should usually prevent toxic digitalis effects For these reasons, potassium should usually be given to patients who require large doses of digitalis Arrhythmias may thereby be prevented Orange juice has a relatively high potassium content and may be efficacious in combating digitalis intoxication —A M Master, M D, Heart Failure Its Treatment—with Special Reference to Chronic Lung Disease, *Diseases of the Chest*, November, 1956

HYPERPHOSPHATASEMIA IN PATIENTS WITHOUT JAUNDICE WITH HEPATOBILIARY DISEASE

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• *The presence or absence of either hepatic metastasis or common bile duct pathology in anicteric patients can be predicted with a high degree of accuracy by determination of the serum alkaline phosphatase level Studies were carried out in 234 cancer patients and in 190 patients with gallbladder disease When the test was done preoperatively in 103 patients with intraabdominal malignancy, normal values were obtained in 65, and only 4 of these were found at operation to have hepatic metastases elevated values were found in 38, and 32 of these proved to have hepatic metastases A similar association of hyperphosphatasemia with hepatic metastases was found in 56 patients with extraabdominal malignancy The alkaline phosphatase level was also helpful in gauging the progress and prognosis of 75 patients with previously resected neoplasm Among 81 anicteric patients tested before cholecystectomy, the alkaline phosphatase accurately predicted the status of the common bile duct in 74 and was of comparable value in evaluating 89 patients whose gallbladder had previously been removed Comparison of this test with direct bilirubin and the sulfobromophthalein tests showed it to be the most accurate of the three in the detection of either hepatic metastasis or obstruction of the common bile duct in patients free of jaundice*

The value of determination of the serum alkaline phosphatase level in the differential diagnosis of jaundice is well established However, its remarkable usefulness in patients without jaundice with certain clinically important types of hepatobiliary disease seems less widely appreciated

In the fall of 1953, I had two patients with diagnostic problems in whom determination of the serum alkaline phosphatase level proved valuable in directing attention to the presence of hepatobiliary disease One patient was a middle-aged male acutely ill with pneumonia but with a history of weight loss over the preceding two months His alkaline phosphatase level was elevated and he was found to have bronchogenic carcinoma with pneumonitis in the lobe involved and with hepatic metastases The other patient was an elderly female with weight loss and digestive disturbances whose alkaline phosphatase level was very high and who was found to have choledocholithiasis, although neoplasm had been suspected clinically Neither patient had jaundice

Although aware of the association of hepatic metastasis and hyperphosphatasemia, I had not used the test extensively for the detection of neoplasm in the liver I had been totally unaware of the ability of stones in the common bile duct to cause elevation of the serum alkaline phosphatase level in the absence of jaundice Therefore, it was decided to explore further the behavior of the phosphatase level in patients without jaundice in whom carcinoma or gallbladder disease had been proved or was suspected The results of this investigation make up the material for this report and, as will be seen, confirm the value of the determination of the alkaline phosphatase level in detecting neoplasm in the liver Of greater interest and importance is the remarkable significance of the serum phosphatase level in the prediction of the presence of stones in the common bile duct despite the absence of jaundice

Value of Determining Alkaline Phosphatase Level

Alkaline phosphatase, an enzyme that liberates inorganic phosphorus from phosphoric esters, is found in largest concentration in the body at sites of glucose transfer (intestinal mucosa and renal tubules) and bone formation (osteoblasts) The serum alkaline phosphatase arises largely, if not entirely, from the bones[1] and, in man, appears to be excreted only by way of the bile As a result, any impairment of biliary drainage causes retention of phosphatase and an increased concentration of the enzyme in the plasma For this reason, determination of alkaline phosphatase level has come to be used as a test of the excretory function of the hepatobiliary system

Roberts,[2] in 1930, first noted elevation of the serum alkaline phosphatase level in patients with jaundice and later pointed out its usefulness in differentiating parenchymal from obstructive forms of icterus Subsequently, determination of the alkaline phosphatase level has been employed almost exclusively in patients with jaundice and for the evaluation of various disorders of bone

In 1937, Flood and co-workers[3] called attention to the value of the alkaline phosphatase level in the detection of the presence of hepatic metastases by reporting on 20 patients with neoplastic liver disease, 17 of whom had hyperphosphatasemia These authors noted that the phosphatase level often rises before jaundice appears The following year, Meranze and co-workers[4] stressed the usefulness of determination of the alkaline phosphatase level in the preoperative evaluation of patients with carcinoma and reported elevation of the phosphatase level in 15 out of 16 patients without jaundice with hepatic metastases Since then, there has been only an occasional report dealing with the topic[5] In 1954, Shay and Siplet[6]

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Read before the Joint Meeting of the Section on Gastroenterology and Proctology and the Section on Pathology and Physiology at the 105th Annual Meeting of the American Medical Association Chicago June 14 1956 suggested employing determination of the alkaline phosphatase level in the follow-up observations of patients with a previously resected neoplasm.

My experience has confirmed the accuracy of the determination of the alkaline phosphatase level in the early detection of neoplasia in the liver in patients without jaundice. I have employed it routinely for the preoperative detection of hepatic metastases in patients known to have cancer. This knowledge has often influenced the decision as to the type and extent of surgery to be employed in attacking the primary lesion. The test has been of assistance, for both prognostic and diagnostic purposes, in the follow-up observation of patients operated on previously for cancer. I have also found the test of considerable diagnostic help in a variety of puzzling clinical problems that proved eventually to be due to cancer. Exemplifications of this are patients with an unidentified lung shadow shown by roentgenogram or a gastric ulcer that could be malignant or with a constricting lesion in the descending colon that might be diverticulitis or neoplasm. Too often an elevated alkaline phosphatase level has been the first definite clue to the presence of a cancer of the body or tail of the pancreas. Unfortunately, the patient whose tumor is first diagnosed by means of determination of the alkaline phosphatase level is already beyond cure because of liver involvement.

The situation is decidedly more encouraging with reference to common bile duct pathology. In my experience, the alkaline phosphatase level is extremely sensitive to the presence of any impediment of extrahepatic biliary drainage such as results from the presence of stones in the common duct of a patient without jaundice. I have come to rely rather heavily on the determination of the alkaline phosphatase level, ordering it taken routinely on patients for whom cholecystectomy is planned. If the phosphatase level is elevated, the surgeon is forewarned that exploration of the common bile duct will probably be required. Similarly, the test is helpful when one is confronted with a patient with digestive symptoms or abdominal distress whose gallbladder has previously been removed. I consider an elevated phosphatase level in a patient who has undergone cholecystectomy compelling evidence for the presence of organic common duct pathology, such as stones, partial stricture, or sphincter fibrosis.

I am unaware of any detailed analysis of the relationship between the alkaline phosphatase level and extrahepatic biliary disease in patients without jaundice. Standard textbooks of medicine and gastroenterology refer to the phosphatase level in discussing jaundice but do not stress its usefulness in the preoperative prediction of ductal stones in patients without jaundice with gallbladder disease or in the evaluation of patients with postcholecystectomy symptoms.

In 1938, Freeman and co-workers[7a] reported a rise in alkaline phosphatase level in dogs without jaundice after ligation of the hepatic ducts draining part of the liver. In 1940, Gutman and co-workers[7b] confirmed the dissociation of normal plasma bilirubin and hyperphosphatasemia in dogs after ligation of branches of the hepatic duct system and stated that incomplete obstruction of the common bile duct by cholangitis or choledocholithiasis could cause an elevation of the phosphatase level without jaundice. However, this suggestion has apparently been largely overlooked and the value of the serum alkaline phosphatase level in detecting incomplete extrahepatic biliary obstruction without jaundice has not, to my knowledge, been widely employed.

Within the last few months a renewed interest in the problem of diagnosing common duct pathology in the absence of jaundice has been evident. The general impressions gained by the present study were briefly presented earlier this year by Stone.[8] Shortly later Watson[9] reported the value of the direct-reacting bilirubin level in a variety of conditions including choledocholithiasis, and Culver and co-workers[10] have recently described their experience with hyperphosphatasemia in six patients without jaundice with partial obstruction of the common bile duct.

Material

During the years 1954 and 1955, the period of this study, serum alkaline phosphatase levels were determined one or more times in 1,033 adults without jaundice. Patients with jaundice, scleral icterus, or a total serum bilirubin level in excess of 2.5 mg per 100 cc, regardless of the clinical description, are not included in this report. The serum alkaline phosphatase level, determined by the King-Armstrong method, was normal (13 King-Armstrong units or less) in 728 patients and was elevated in 305.

TABLE 1.—*Causes of Hyperphosphatasemia in Patients Without Jaundice*

Cause	Cases, No.
Hepatic metastases	95
Common bile duct pathology	80
Parenchymal hepatic disease	38
Bone disease	26
Chronic passive congestion	16
Unexplained	20
Not investigated	30
Total	305

Table 1 lists in order of decreasing frequency, the various causes of hyperphosphatasemia. Despite the absence of jaundice in the patients, diseases of the hepatobiliary system accounted for the elevation of alkaline phosphatase level in 70% of the total. By contrast diseases of bone associated with hyperphosphatasemia occurred only 26 times, or 8.5%, and included 10 patients with osteoblastic metastases usually *prostatic in origin*, 7 with *osteitis deformans* (Paget's disease of bone), 5 with healing fractures, and 4 with hyperparathyroidism.

Sixteen patients with passive congestion of the liver due to heart failure were found to have mild to moderate hyperphosphatasemia, ranging as high as 43.5 King-Armstrong units, with a mean value of 19.0 units in patients without jaundice. In 20 patients a reason for the elevated phosphatase level could not be found, and in 30 patients the clinical investigation was, for various reasons, judged inadequate to exclude all the usual causes of an elevated phosphatase level.

Metastases to the liver accounted for 72% of the 133 instances of hyperphosphatasemia without jaundice due to intrahepatic disease. Other causes were as follows: cirrhosis 20, cholestasis due to chlorpromazine 7, diabetes with fatty liver 5, anicteric hepatitis, 4, and collagen disease, 2. The second most commonly encountered cause for hyperphosphatasemia in patients without jaundice was pathology of the common bile duct, usually ductal stones.

TABLE 2.—*Preoperative Determination of Phosphatase Level in 103 Patients Without Jaundice with Intra-abdominal Malignancy*

Alkaline Phosphatase Level	Cases, No.	Hepatic Metastases	
		Present	Absent
Normal	65	4	61
Elevated	38	32	6

Patients with Hepatic Metastases

The alkaline phosphatase level was determined in 234 patients without jaundice with cancer. The test was done preoperatively in 103 patients with intra-abdominal malignancy (table 2). Of 65 patients with a normal preoperative phosphatase level, only 4 had hepatic metastases. Six patients were encountered who had a normal phosphatase level and no metastases in the liver but who had small surface implants on the liver as a part of generalized peritoneal carcinomatosis. Four of these neoplasms originated in the ovary, and in three patients the absence of intrahepatic lesions was subsequently confirmed at autopsy.

By contrast, of 38 patients with hyperphosphatasemia preoperatively, 32 had gross metastases visible and palpable in the liver at the time of operation. In six patients there were no detectable metastases, although deep intrahepatic lesions may have been present. The preoperative phosphatase level, therefore, proved accurate in predicting hepatic metastases in at least 90% of this group of patients without jaundice with cancer in whom the liver could be examined at operation.

A determination of alkaline phosphatase level was obtained preoperatively in 56 other patients with forms of cancer that did not require abdominal surgery (table 3). The phosphatase level was normal in 36 patients, none of whom had any clinical evidence to suggest involvement of the liver. The phosphatase level was elevated in 20 patients with extra-abdominal malignancy, 15 of whom had clinical signs of probable liver metastases as evidenced by hepatomegaly or a progressively rising phosphatase level and deterioration. In five patients there was no hepatic enlargement, and follow-up observations through the period of this study gave no definite indication of neoplasia in the liver.

TABLE 3.—*Determination of Phosphatase Level in Fifty-six Patients with Extra-abdominal Malignancy*

Alkaline Phosphatase Level	Cases, No.	Hepatic Metastases	
		Present	Absent
Normal	36	0	36
Elevated	20	15 (probable) 5 (possible)	0

In order to better assess the patient's status and the prognosis of his condition, the alkaline phosphatase level was determined in an additional 75 patients without jaundice who had previously undergone operation for cancer (table 4). The phosphatase level was normal in 38 patients, none of whom had detectable hepatomegaly or other clinical evidence to suggest the spread of neoplasm to the liver. However, 37 patients without jaundice operated on previously for cancer were found to have hyperphosphatasemia. Hepatic metastases were demonstrated in nine of these patients by liver biopsy, autopsy, or exploration of the abdomen. In 19 cases, hepatic metastases were judged probably present on the basis of hepatomegaly, progressive deterioration of the patient's condition, and, in many cases, a progressive rise of the serum phosphatase level. Liver involvement was further suggested in a number of these patients by the later development of jaundice. Seven patients had an elevated phosphatase level but no clinical stigma to suggest hepatic metastases, although in some cases spread or recurrence of neoplasm was evident elsewhere in the body.

The mean alkaline phosphatase level for patients with proved metastasis to the liver was 24.1 King-Armstrong units. For patients considered, on clinical grounds, as probably having malignant involvement of the liver, the mean value was 30.5 units. There was no apparent relationship between the degree of hyperphosphatasemia, which ranged from 13.5 to 84.5 King-Armstrong units, and the extent of neoplastic replacement of liver. Furthermore, it seemed clear that even a small increment of serum phosphatase bodes ill for the patient with cancer, since some cases of metastatic liver involvement were encountered in which patients had phosphatase levels only one or two units above the normal limit. Actually, as Shay and Siplet[6] have pointed out, the phosphatase level in the adult is remarkably constant from month to month. In following patients with previously resected neoplasms, I have encountered instances of gradually rising phosphatase levels still within the normal range, which, nevertheless, in retrospect, probably denoted early liver involvement, since hyperphosphatasemia and obvious hepatic metastases developed later.

TABLE 4.—*Determination of Phosphatase Level in Seventy-five Patients Without Jaundice Who Had Previously Undergone Surgery for Cancer*

Alkaline Phosphatase Level	Cases, No.	Hepatic Metastases	
		Present	Absent
Normal	38	0	38
Elevated	37	9 (proved) 19 (probable) 7 (possible)	2

The neoplasms resulting in the hepatic metastases seen in this study were usually primary in the digestive system. The distribution was as follows: colon, 12 cases; stomach, 12; breast, 11; pancreas, 6; rectum, 4; bronchus and liver, 3 each; and prostate, gallbladder, and lymphosarcoma, 2 each. Other widely scattered primary sites accounted for the remainder of the carcinomas found to be metastatic in the liver and associated with hyperphosphatasemia without jaundice

Patients with Diseases of the Biliary System

The serum alkaline phosphatase level was obtained in 178 patients without jaundice with disease of the extrahepatic biliary system, either current or previous Prior to cholecystectomy the phosphatase level was determined in 81 patients (table 5) Of 50 patients with a normal phosphatase level, 5 were found to have stones in the common bile duct, although operative cholangiograms in 3 of them did not disclose dilatation of the duct and the stones may have entered at the time of anesthesia or surgical manipulations The phosphatase level was misleadingly normal in the other two patients who had stones, a dilated duct, and, in one, a history of previous jaundice In the other 45 patients with a normal preoperative phosphatase level, the biliary tree was normal at operation

In 31 of the patients tested before cholecystectomy, the preoperative phosphatase level was elevated, and in all but 2 of these *the common bile duct was abnormal* Twenty-six patients had stones in the common bile duct, none were icteric and only three gave a history of previous jaundice Three patients had a dilated, thickened duct but no stones were recovered, presumably the stones had passed between the time the phosphatase level was determined and the time of operation An excellent example of this was provided by a patient with an alkaline phosphatase level of 27 King-Armstrong units and three stones in the common bile duct demonstrated by intravenous cholangiography This patient did not come to operation until two months later, at which time his preoperative phosphatase level was found to be normal At operation the common bile duct was likewise found to be normal, the previously proved ductal stones having passed in the intervening period of time

The test was applied in 89 patients who had had cholecystectomy performed months or years previously (table 6) Not all of these patients had symptoms at the time of the test, but it was done as part of this study and as a screening procedure to find stones in asymptomatic patients The phosphatase level was normal in 48 patients in the group, most of whom were asymptomatic *In 10 of* the patients with a normal phosphatase level, an intravenous cholangiogram was done because of strongly suggestive symptoms In nine, the duct was found to be normal by cholangiography, but in one case dilatation, stones, and delayed emptying of the duct were found

TABLE 5 —*Determination of Phosphatase Level in Eighty one Patients Without Jaundice Before Cholecystectomy*

Alkaline Phosphatase Level	Cases No	Common Bile Duct	
		Normal	Stones
Normal	50	45	5
Elevated	31*	2	26

* 3 patients had dilated duct but no stone

Hyperphosphatasemia without jaundice was encountered in 41 patients whose gallbladder had previously been removed In all of the 31 cases investigated, an abnormality of the common bile duct was found At subsequent operation, 25 patients had ductal lithiasis and 3 had a partial stricture, while in the remaining 3 patients a prosthesis was known to be in place In 10 patients with an elevated alkaline phosphatase level, exploration or intravenous cholangiography has not yet been done

TABLE 6 —*Determination of Phosphatase Level in Eighty nine Patients Who Had Had a Cholecystectomy*

Alkaline Phosphatase Level	Cases No	Common Bile Duct	
		Normal	Abnormal
Normal	48	47*	1
Elevated	41†	0	25(stones) 3(stricture) 3(prosthesis)

* Corroborated by intravenous cholangiogram in 9
† 10 cases not yet investigated

Liver biopsy was performed at the time of operation in several of the patients without jaundice with hyperphosphatasemia due to stones in the common bile duct No instances of biliary cirrhosis were encountered Occasionally there was pathological evidence of recent ascending cholangitis, but in most patients the liver was normal histologically

The alkaline phosphatase level was also found elevated in a small group of patients without jaundice with external compression of the common bile duct Narrowing of the duct was confirmed in each case by operative cholangiography The various causes of the duct compression were as follows malignant lymphadenopathy without hepatic metastases three cases, pancreatic cyst, three, and pancreatic fibrosis, two In summary the alkaline phosphatase level was determined in 121 patients without jaundice who had surgical examination of the biliary tree In an additional nine cases, the ductal system was checked by intravenous cholangiography alone Determination of the phosphatase level enabled the physician to predict accurately the presence or absence of common duct pathology, usually stones, in 94% of these patients

The mean phosphatase level in patients without jaundice with ductal stones who were tested before cholecystectomy was 35 5 King-Armstrong units, within a range of 15 0 to 80 0 units The patients with common duct pathology after cholecystectomy had an average phosphatase level of 33 4 King-Armstrong units and a range of 14 0 to 75 9 units Patients with jaundice due to stones in the common bile duct who were encountered during the study period averaged only a slightly higher phosphatase level of 38 0 units In contrast, malignant obstruction with jaundice tended to cause a greater rise in serum phosphatase level, with an average of 57 7 King-Armstrong units The patients with jaundice are not included in the present report

During this study the technique of intravenous cholangiography with use of sodium iodipamide (Cholografin sodium) became generally available This procedure was employed in 25 of these patients In nine, both the alkaline phosphatase level and the intravenous cholangiogram were normal In one patient with normal phosphatase level, referred to previously, the cholangiogram demonstrated stones in the common bile duct, and in one case the reverse was true Of an additional three patients with hyperphosphatasemia, the cholangiogram failed to demonstrate stones but did reveal a dilated duct with delayed emptying in two of the patients, while in one the duct system was not visualized by the dye In the remaining 11 patients, the ductal stones predicted by the elevated phosphatase level were confirmed by the intravenous cholangiogram and subsequently by operation

Other Liver Function Tests

Other liver function tests have been suggested for the purpose of detecting partial intrahepatic obstruction of biliary drainage Shay and Siplet[6] recommended combining the sulfobromophthalein sodium retention test with determination of the alkaline phosphatase level in order to enhance the accuracy of diagnosing hepatic metastases Watson[9] has recently discussed the particular value of determining the direct reacting bilirubin fraction in patients without jaundice with various types of hepatobiliary disease, including hepatic metastases and stones of the common bile duct

TABLE 7—*Comparative Value of Liver Function Tests*

Pathology Present	Test Employed	Patients No	Patients with Abnormal Test %
Hepatic metastases	Determination of alkaline phosphatase level	45	91
	Direct bilirubin	19	78
	Sulfobromophthalein	22	73
Obstruction of the common bile duct	Determination of alkaline phosphatase level	73	93
	Direct bilirubin	55	64
	Sulfobromophthalein	13	62

In table 7 the comparative value of these tests for detecting hepatic neoplasia and partial obstruction of the common bile duct in the present study is shown Only pathologically proved cases of metastases are included in this comparison If the patients classified on clinical grounds as probably having hepatic metastases are included, the total number becomes 79, but the accuracy remains essentially the same for determination of the phosphatase level, at 92% All diagnoses of common duct pathology were substantiated by operation

In my experience, determination of the alkaline phosphatase level is more accurate than the direct serum bilirubin or sulfobromophthalein sodium retention tests in detecting either hepatic metastases or common duct pathology The direct bilirubin test was performed by the method of Powell[11] and values above 0 15 mg per 100 cc considered abnormal Sulfobromophthalein sodium retention was measured 45 minutes after injection of 5 mg of dye per kilogram of body weight, with 5% taken as the limit of normal retention Sulfobromophthalein sodium retention and direct-reacting bilirubin tests were abnormal in about three-fourths of the patients with hepatic metastases and in approximately two-thirds of those with common duct pathology By comparison, the serum alkaline phosphatase level was elevated in more than 90% of the patients in both categories

Of the four patients with metastases in the liver and a normal phosphatase level, none had had serum bilirubin determinations done and only one had had a sulfobromophthalein sodium retention test, which was also normal Of the six patients with stones of the common duct and a normal phosphatase level, a direct-reacting serum bilirubin test was done in four, with normal results in every case The sulfobromophthalein sodium retention was determined in one case and was slightly abnormal at 6%

It should be mentioned here that during this study I encountered one patient with jaundice due to stones of the common duct whose alkaline phosphatase level was normal In all other patients with such stones and jaundice, hyperphosphatasemia was present as expected Likewise, all patients with jaundice due to hepatic metastases had a high alkaline phosphatase level (average 70 5 King-Armstrong units) None of the patients with jaundice are included in this report

The serum cholesterol level is sometimes elevated in patients with obstructive jaundice or biliary cirrhosis In this study, determinations of cholesterol level were done in only a few of the patients without jaundice with metastasis or stones of the common duct No instances of definite hypercholesteremia were encountered However, a serious shortcoming of determination of cholesterol level as a test of biliary patency is its wide range of normal concentration, thus making the individual cholesterol level difficult of interpretation An additional test, which, unfortunately, was seldom performed, is for bilirubin in urine An occasional positive test was encountered, but not consistently As will be brought out later, the urine bilirubin test theoretically should be positive in all patients with an elevated alkaline phosphatase level due to partial biliary blockade without jaundice

Precautions

In my experience, the presence of hyperphosphatasemia in a patient without jaundice has usually been due to either neoplastic involvement of the liver or common duct pathology, generally ductal lithiasis However, less frequent causes for the elevated phosphatase level do occur, as was shown in table 1 Cirrhosis or hepatitis occasionally result in hyperphosphatasemia (average values 17 5 and 23 9 King-Armstrong units respectively) without jaundice, but other tests of parenchymal liver function and, especially, the history and physical examination will usually permit recognition of these disorders Previous treatment with chlorpromazine (Thorazine) hydrochloride must also be kept in mind in evaluating a patient with hyperphosphatasemia without jaundice During the present study, I encountered seven such patients with an average phosphatase level of 27 0 King-Armstrong units Cholestasis without jaundice due to chlorpromazine has recently been reported[12]

In my patients with metastatic liver disease or ductal stones, tests of parenchymal cell status were almost always normal *Nearly all patients had either a* thymol turbidity test or a cephalin-cholesterol flocculation test, and, in many, more detailed liver tests were done An occasional patient with extensive metastatic replacement of the liver or recent cholangitis had slightly abnormal parenchymal tests, but in the vast majority they were normal If the liver profile shows significant alteration of parenchymal cell function or if the clinical picture presented suggests parenchymal liver disease, the presence of an elevated alkaline phosphatase level in a patient without jaundice should not be regarded as proof of either metastases in the liver or partial biliary obstruction

Diseases of bone characterized by attempts at bone regeneration, such as osteitis deformans, osteomalacia, fracture, osteoblastic osseous metastases, and some cases of hyperparathyroidism, can cause an elevated alkaline phosphatase level Roentgenographic studies of the skeleton together with determinations of calcium, phosphorus, and acid phosphatase levels, plus the clinical picture presented by the patient, will ordinarily lead to the proper diagnosis However, isolated osseous metastases or localized forms of osteitis deformans might be overlooked and cause erroneous incrimination of the hepatobiliary system

Congestive heart failure can, at times, cause an elevated phosphatase level, apparently as a result of passive congestion of the liver [3] Heart failure is usually readily apparent clinically but should be kept in mind when evaluating the condition of a patient with hyperphosphatasemia without jaundice Two physiological causes of an elevated phosphatase level are pregnancy and the bone growth of childhood The latter does not present much difficulty, since hepatic metastases and choledocholithiasis are seldom encountered in children However, it should be recalled that there is often an elevated phosphatase level, presumably placental in origin, during the third trimester of pregnancy [13] I found hyperphosphatasemia in 3 of 12 pregnant women tested during the course of this study The three with an abnormal phosphatase level were in the third trimester

In most cases of metastatic disease of the liver, the primary lesion is demonstrable by physical examination or x-ray techniques However, I have, on a number of occasions, been unable to locate the site of origin of a neoplasm suspected to be present by reason of an elevated phosphatase level Abdominal exploration in these patients has always demonstrated hepatic metastases, and often the primary lesion was found in the pancreatic body or tail As Shay and Siplet [6] have pointed out, the presence of sulfobromophthalein sodium retention in conjunction with elevation of the phosphatase level enhances the reliability of diagnosis of hepatic metastases In my experience, as in Watson's,[9] the same holds true for the direct-reacting serum bilirubin test and also applies to the diagnosis of stones of the common bile duct in patients without jaundice However, as was shown in table 7, the sulfobromophthalein sodium retention and direct bilirubin tests were abnormal in a decidedly smaller percentage of the patients with either metastasis to the liver or biliary tree pathology than was the determination of the alkaline phosphatase level

In all of my patients with choledocholithiasis, either the gallbladder had been removed in the past or, if the gallbladder was intact, the presence of cholelithiasis or nonfunction of the viscus was demonstrable by roentgenographic studies That is, no patient with choledocholithiasis had a normal cholecystogram The newer method for intravenous cholangiography now provides a valuable method for confirming the presence of common duct patholølgy It has not proved any more accurate than the determination of phosphatase level for this purpose, and, of course, there is no comparison between the methods in terms of time involved, technical complexity, cost to the patient, or general availability

Comment

The mechanism of hyperphosphatasemia without hyperbilirubinemia in patients with space-occupying intrahepatic lesions, such as metastases, is unknown Three theories have been suggested (1) retention of phosphatase due to interference with normal excretion of this enzyme in the bile, (2) overproduction of phosphatase by the liver, and (3) unknown alterations of the plasma resulting in an increased phosphatase activity as measured in the laboratory

To test for the presence of an unknown phosphatase activator, equal parts of plasma from a normal subject and plasma from a patient with hyperphosphatasemia without jaundice were mixed The phosphatase level determined on the mixed specimen after incubation was not higher than the expected average of the two Histochemical techniques have failed to demonstrate alkaline phosphatase in cancers originating in tissue other than bone, except for small amounts in the connective tissue stroma,[14] nor is there conclusive evidence that the liver produces the excess phosphatase found in patients with hepatic metastases, although some observers believe that regenerating cholangiolar epithelium is a source of phosphatase [15]

An appealing explanation for the dissociation of hyperphosphatasemia and normal bilirubin level in patients with either intrahepatic or extrahepatic partial biliary obstruction is provided by the retention theory, which is strengthened by the results of animal experimentation Ligation of subdivisions of the extrahepatic biliary tree in dogs [7] results in an elevated serum phosphatase level and bilirubinuria, but the total serum bilirubin level remains normal Regardless of the level of serum phosphatase, the dog does not excrete this enzyme in the urine Cats, on the other hand, do excrete phosphatase via the kidneys, and in the cat a ligature around the bile duct does not result in hyperphosphatasemia [16]

One of my patients with colic and indigestion two years after cholecystectomy was found to have an elevated phosphatase level without jaundice Intravenous cholangiography demonstrated a solitary stone in the left hepatic duct The common duct was free of stones and not dilated The situation in this patient would seem to be comparable to that described above in dogs with hepatic duct ligatures, and, like the dog, man does not lose phosphatase in the urine However, bilirubin of the direct-reacting variety does escape into the urine at a very low renal threshold, about 0 5 mg per 100 cc It is thought, therefore, that the loss of bilirubin in the urine prevents a partial biliary obstruction from causing jaundice but that phosphatase is retained in the plasma since it is unable to pass the renal barrier Whether or not the retention theory, which depends upon the differential renal excretion of bilirubin and phosphatase, is correct, it offers an explanation compatible with the clinical findings reported

Since the completion of this study, Culver and coworkers[10] reported on a series of six patients without jaundice with pathology of the common bile duct, either stone or stricture, who had hyperphosphatasemia To explain the dissociation of phosphatase and bilirubin, these authors suggested that the partial obstruction of the biliary system raised the back pressure in the liver sufficiently to interfere with the excretion of phosphatase but not of bilirubin by the parenchymal liver cells I prefer to consider the passage of phosphatase from plasma to bile to be more of a passive process largely independent of parenchymal cell activity, since most patients with severe parenchymal cell dysfunction and many with acute yellow atrophy of the liver do not have any elevation of serum phosphatase level

Despite the lack of a generally accepted explanation of hyperphosphatasemia without jaundice, the data presented adequately demonstrate that this dissociation does occur in patients with partial biliary blockade and that the phenomenon may be put to good use clinically

Summary and Conclusions

Determination of the serum alkaline phosphatase level is a remarkably accurate gauge of the presence of stones in the common bile duct or hepatic metastases in patients without jaundice When the determination is done prior to cholecystectomy, the phosphatase level, if elevated, gives warning that exploration of the common duct and drainage will probably be required The test also assists in the evaluation of the condition of patients with postcholecystectomy symptoms, since the phosphatase level is rarely normal if organic pathology of the duct, such as stones, stricture, or ampullary fibrosis, exists even though jaundice is absent In my experience, this test has been fully as accurate as intravenous cholangiography in evaluating biliary tree patency

Similarly, management of cancer patients is facilitated by determination of serum alkaline phosphatase level Hyperphosphatasemia is a sensitive and early indication of metastatic spread to the liver, while a normal phosphatase level offers reassurance that the neoplasm has not yet involved the liver Used preoperatively, determination of the phosphatase level can assist in planning the type and extensiveness of surgery to be done Employed in patients with a previously resected neoplasm, the test helps gauge progress and prognosis Also, this test is occasionally valuable as a screening procedure for neoplasia and at times is the only clue to the presence of an occult neoplasm, such as carcinoma of the body of the pancreas

In conclusion, the results of this investigation confirm the definite usefulness of determination of the serum alkaline phosphatase level in patients without jaundice with disorders of the common bile duct or metastatic involvement of the liver As is true of any laboratory procedure, the results of the test must be evaluated in light of the over-all clinical picture

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PERSONAL TECHNIQUE AND RESULTS IN INGUINAL HERNIA REPAIR

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• In 436 patients who had an operation for inguinal hernia, the recurrence rate was 0 46% The almost 100% cure rate is possible when any of the many types of procedures are performed by thoughtful surgeons who are willing to vary the operation to fit the anatomy of their patients The important thing is for the surgeon to realize the importance of exercising infinite care and pains in every single step of the operation, no matter how inconsequential the hernia may seem to be

That inguinal hernias may be repaired successfully by a number of different methods is being demonstrated every year A recent summary [1] of the various methods being used, taken from personal reports from 286 of the leading surgeons of the country, amply illustrates this Undoubtedly some of these reports were influenced by personal prejudices for or against certain methods I feel sure, however, that, on the whole, these eminent surgeons were setting forth unbiased and unprejudiced views based on a wide and thoughtful experience

Undoubtedly too many surgeons early in life adopt a method of inguinal hernia repair, which they use routinely without giving any thought to varying their methods to suit the individual case One reason for this is poor training, which undoubtedly, and lamentably, still exists in some of our hospitals Another reason is that very often even able chiefs of service turn hernia operations over to the junior members of their house staffs, because they feel, if only subconsciously, that the operation is of little importance The young house men are given entirely too much leeway in the choice of the operation and are not properly supervised in the actual technique of the method employed The fact has been impressed upon me in many hospitals, both civil and military, in this country and abroad, that the younger the surgeon the more fixed his ideas are apt to be and the poorer his results This has resulted in a great deal of careless and sloppy work in hernia repair, and I believe that it is responsible for the still too large number of recurrences that we have throughout the country

In spite of this, when the operation is carefully done, there are many methods which will effect a number of cures, approximating 100%, when these methods are used by thoughtful surgeons, without fixed ideas, who are willing to vary the operation to fit the anatomy of their patients The late Dr J M T Finney was frequently heard to say "Make your operation fit the patient Don't try to make the patient fit your operation" The importance of this maxim is realized by all surgical philosophers And how can a man really be a surgeon unless he is a philosopher? No matter how beautiful one's surgical technique may be, he does not meet the yardstick of the surgeon unless he has a knowledge of the techniques of other surgeons and the judgment to evaluate the good and bad points of those techniques

Methods of Operation

It would be presumptuous to speak of any method as "the" method In this paper I propose simply to recount some of the methods I have used with a high degree of success in inguinal hernia repair There are, of course, other methods which have been successfully used However, I believe that it is highly important for us to reevaluate the subject occasionally and put more thinking and less dogmatism into it Dogmatism seldom has a place The recent study referred to above shows that it has little, if any, place in inguinal hernia repair

Figures 1 to 6 illustrate some of the methods I have used in operating for this condition There have been various variations of these methods Frequently only one part of the techniques depicted in the illustrations is used in a particular case The legends under the illustrations describe the methods Various points, however, will be discussed below

Handling of the Sac —It is axiomatic that in indirect inguinal hernias there should be a high ligation of the sac This can readily be done in primary indirect inguinal hernias where the neck of the sac is narrow A simple transfixion and ligation is simply and easily done However, in large indirect inguinal hernias and especially in recurrent hernias, the base of the sac is often very broad and a simple transfixion and ligation cannot be done In these cases the sac should be dissected free, excised, and the peritoneum closed with a running suture of silk or cotton (fig 1)

In many instances the LaRoque [2] incision is most valuable in dealing with the sac This is especially true in the case of patients with sliding hernias and with recurrent hernias, in whom the anatomy has been 'scrambled' by previous operation and the relationships of the various structures are hard to determine through an inguinal incision In these cases the La Roque incision is a great timesaver This is a simple muscle-splitting incision, made about 1 in above the internal ring, entering the peritoneal cavity at that point By means of a finger in the peritoneal cavity, the relationships of the sac can be readily determined, the nature of the hernia can be ascertained, and the other usual sites of groin hernia explored in order to determine whether more than one hernia is present In recurrent hernias this method is a great help in unscrambling the anatomy, which has frequently been so badly distorted by many previous operations (I have operated on a good many hernias that had been operated on as many as six times before, and in one case the poor patient had had seven previous opera-

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From the departments of surgery of the Johns Hopkins University School of Medicine and the Johns Hopkins Hospital

Read before the Section on Surgery, General and Abdominal, at the 105th Annual Meeting of the American Medical Association, Chicago, June 12, 1956 tions[1]) In sliding hernias this method provides an easy method of dealing with the condition and converts what in many cases is a difficult operation into an easy one Those not familiar with this method of dealing with the sac in sliding hernias should lose no time in becoming so

In the majority of direct inguinal hernias the sac is dome-shaped and not excessively large In such cases it is not necessary to open the sac but the sac may simply be tucked in by puckering interrupted or mattress sutures If the sac is large it is best to open it dissect it free and excise it The opening in the peritoneum is closed with a running suture of black silk In the occasional direct hernia instead of the sac being dome shaped owing to a general weakness of the transversalis fascia, it is pear-shaped and protrudes through one weak spot in Hesselbach's triangle which is surrounded by strong transversalis fascia Such a sac may be dealt with by transfixion and ligation

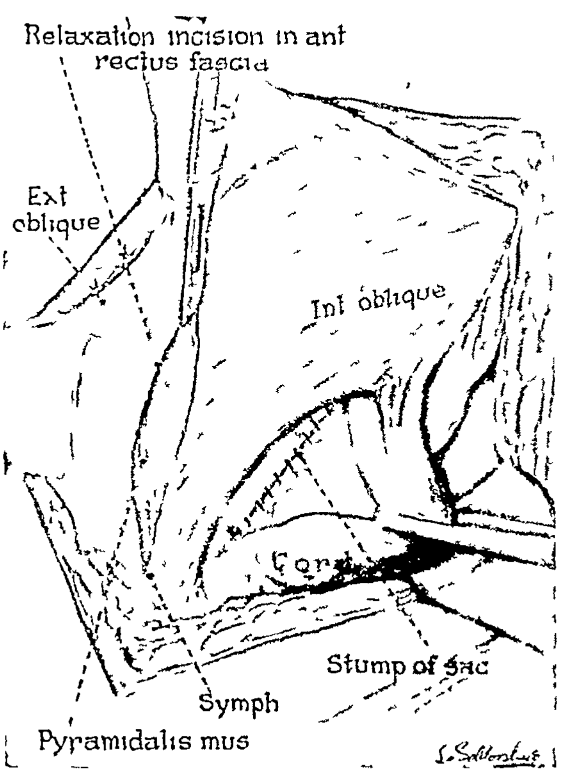

Fig 1—Sac of large scrotal hernia has been resected and peritoneum closed with running suture of silk Relaxation incision is being made in sheath of rectus muscle from symphysis pubis upward for approximately 3 in This incision is not perpendicular but is slightly diagonal tending in lateral direction the higher it goes in order to conform to insertion of aponeurosis of external oblique into rectus sheath Incision should be made as close to this insertion as possible If it is made near lateral border of rectus muscle a weak spot will be left just lateral to muscle when various structures are sutured together during plastic repair

When one is dealing with what is obviously a direct hernia one must be sure that there is not an associated indirect hernia This should always be carefully searched for If there is any doubt about the presence or absence of an indirect sac, a LaRoque incision should be made, and the entire groin area explored from within the peritoneal cavity for the presence of either an indirect or a femoral sac Often a small indirect sac cannot be palpated with the examining finger However, with a LaRoque incision the abdominal wall at the lower edge of the incision can be lifted with a retractor, and the internal inguinal ring inspected as well as palpated[3]

Closing the Hole in the Transversalis Fascia—In direct inguinal hernias frequently the floor of the inguinal canal is strong (especially in young patients) except for the opening in the transversalis fascia through which the sac protruded After the sac has been disposed of, the hernia may be cured by simply closing the opening in the transversalis fascia snugly around the cord (fig 3) This can best be done if the cord is lifted from its bed, so that the entire floor of the inguinal canal can be inspected It should also be palpated, not only from the outside but from the inside as well This can be done with a finger in the abdominal cavity through the open sac At the same time the possibility of any direct or femoral hernia can be determined Undoubtedly a great many hernias can be cured simply by closing the hole in the transversalis fascia However, I believe that it requires rare judgment to determine just which cases come in this category It must be remembered that the patient would not have a hernia at all did he not have a tendency to some weakness in his fascia, or were he not put together a little bit more loosely than the normal person Realizing that he has this tendency, one must consider what may further happen to him as the years go by

Some authors advocate simply closing the opening in the transversalis fascia in the repair of direct inguinal hernias As a rule, a direct inguinal hernia is due to a thinning out of the transversalis fascia in the entire Hesselbach triangle area In these cases the transversalis fascia is not strong enough to effect a cure by simply closing it There are a few cases, however, in which the fascia in Hesselbach's triangle is strong except for one small area through which a direct hernia protrudes, having a sac resembling an indirect sac in shape rather than the usual dome-shaped affair which is generally encountered Possibly simply closing the hole in the fascia in these instances would cure the hernia However, it is my feeling that more should be done in the way of a plastic repair in these cases

Relaxation Incision in the Sheath of the Rectus Muscle—The relaxation incision in the sheath of the rectus muscle, first described by Halsted[4] in 1903 in one small paragraph of an article on hernia repair and since lucidly described by Fallis,[5] Rienhoff,[6] and Tanner,[7] is a valuable adjunct to any form of plastic repair and provides relaxation of the tissues which cannot otherwise be obtained I use it almost routinely in the repair of inguinal hernias in adults The inner flap of the aponeurosis of the external oblique is dissected free from the sheath of the rectus by blunt finger dissection In recurrent hernias this often requires sharp dissection The aponeurosis is then elevated with a retractor, and an incision in the rectus sheath is made just lateral to the insertion of the external oblique aponeurosis into the rectus sheath The incision should extend from the symphysis upward for about 3 in (fig 1, 3, 4, and 5) As a rule, in making the incision one small vessel is severed Both ends of this should be ligated with transfixion ligatures Ordinary ligatures may slip and cause bleeding (I learned this the hard way In closing an incision a few years ago, blood started welling up from below I had to open the wound and found that a ligature had slipped on a vessel which had been cut in making the relaxation incision) Immediately the relaxation incision is made the edges of the fascia separate for about 1 in , which is a great factor in relieving tension in any plastic repair Indeed, if only a hole is to be sutured in the transversalis fascia, this relaxation incision seems worthwhile

The question is often asked, Will not such an incision weaken the abdominal wall? It will not if the incision is made at the proper place and as far mesially as the attachment of the aponeurosis of the external oblique to the rectus sheath will permit If the incision is made toward the lateral edge of the rectus muscle, the suturing of the structures in the plastic repair will pull the sheath away from the lateral edge of the muscle, leaving a very weak spot there with nothing but transversalis fascia and peritoneum, as the posterior sheath of the rectus is absent below the semilunar line of Douglas Halsted,[4] in reflecting a flap of the sheath of the rectus to strengthen Hesselbach's triangle, pointed out that such a reflection of the flap left a weak spot at the lateral edge of the rectus It is true that this weak spot is covered by the aponeurosis of the external oblique, and Davis has found that it causes no trouble in using the Halsted flap operation Be that as it may, it is simple to make the relaxation incision over the belly of the muscle itself, where it certainly causes no trouble It has been demonstrated experimentally[8] that in such cases the rectus sheath undergoes regeneration

Position of the Cord —I was brought up on the Ferguson-Andrews operation[9] (also called the Halsted II[4] and the Hopkins operation) for indirect inguinal hernia and on the Bassini operation for direct inguinal hernia In the Ferguson-Andrews operation the cord is left in its bed, the conjoined tendon sutured to Poupart's ligament over it, and the flaps of the aponeurosis of the external oblique are overlapped Because I felt that there were too many recurrences with the Ferguson-Andrews operation, I abandoned it and started using the Bassini operation routinely for both direct and indirect inguinal hernias I soon gave this up also and for 20 years or more have been transplanting the cord almost routinely in adults into the original Halsted subcutaneous position This allows a tight and complete closure of the lower end of the canal and, I believe, gives a better chance of preventing a direct recurrence than if the cord is left in either the Ferguson or the Bassini position Even young adults, who at the time of their hernia repair seem to have strong fascia in the floor of the canal, suffer a thinning out of these structures in middle or old age with a tendency to develop direct hernias A tight closure of the lower end of the canal helps to obviate this Besides, interposing the cord between layers of good supporting abdominal wall interferes with the growing together of such structures as the internal and the external oblique, and it seems reasonable to believe that these united structures will form a firmer buttress against intra-abdominal pressure than if they have the cord interposed between them It has been shown[1] that this position of the cord has become the most popular among leading surgeons of the country for large indirect inguinal hernias and also for direct hernias

An objection that is often raised to the subcutaneous transplantation of the cord is that it destroys the obliquity of the canal It is true that the canal is oblique to start with But if the oblique canal does not prevent the occurrence of a hernia, how can the preservation of its obliquity prevent the recurrence of the hernia? It must be remembered that, in order for an indirect hernia to recur, it must first emerge through the internal ring If that emergence occurs, the recurrence is a *fait accompli*, and the position of the external ring has no bearing on this already accomplished fact

Another objection that has been raised to the subcutaneous transplantation of the cord is that it might cause some tenderness in this position in thin persons I have never seen this occur, and I have not been able to find any surgeon who has seen it occur I have occasionally, in operating for bilateral inguinal hernia transplanted the cord in the subcutaneous position on one side and in the Bassini position on the other side None of these patients was ever aware of any difference in the two sides

Removal of the Testis —The only reason for removing the testis is to dispense with the cord Probably the presence of the cord is the greatest obstacle to the cure of inguinal hernia in the male patient This structure is undoubtedly responsible for the far greater number of inguinal hernias in male than in female patients In spite of this, I believe that most inguinal hernias in male patients can be cured without sacrificing the cord Some surgeons refuse to operate on difficult recurrent hernias unless the patient agrees to the sacrifice of the testis on that side I no longer ask patients before operation if they are willing to have a testis removed Most of them flatly refuse or accede to the request with great reluctance In an occasional case in recurrent hernias, the cord comes through the internal ring through a mass of scar tissue, sometimes of such a cartilaginous consistency that proper closure of the structures around the cord is impossible, and it is felt that the presence of the cord would invite another recurrence In such cases the cord may simply be transfixed and ligated at both the internal and the external ring, and the intermediate portion resected Unless the testis has been removed from its bed, the collateral circulation to that organ will not have been interfered with, and atrophy is rare In those patients in whom atrophy does occur, it is probable that the cord has been dissected free too far beyond the external ring, thus interfering with the collateral circulation After such an excision of a section of the cord, some swelling and tenderness of the testis occurs, but this condition generally subsides within a few days A suspensory should be worn during the troublesome period

Reducing the Size of the Cord—Reducing the size of the cord is highly important, so that the internal ring may be closed snugly around as little tissue as possible Large cords can be greatly reduced in size by removing the cremaster and any fatty tissue or lipomas which are in the cord (fig 1, 2, and 3)

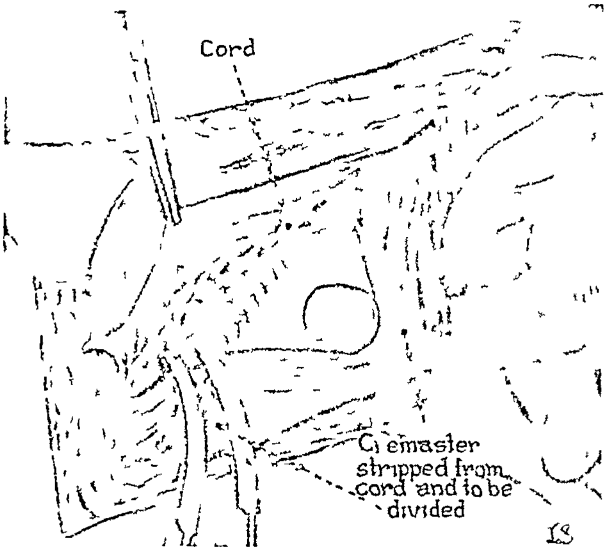

Fig 2 —In large hernias cremaster is generally considerably hypertrophied Here it is being separated from rest of cord in order to reduce size of cord at internal ring and thus enable better approximation of tissues around cord in that area Any lipomas or fatty tissue in the cord should also be removed

Closing the Internal Ring—I believe that a great many hernias recur because the structures forming the internal ring are not closed snugly enough around the cord In most cases there would be no indirect hernia in the first place if the structures had not been lax about the cord at the internal ring In repairing the hernia, the structures around the internal ring should be closed tightly enough to prevent a new hernia sac from impinging itself between these structures and the cord This requires a very tight closure It is difficult to close the internal ring tightly enough to interfere seriously with the circulation of the testis That, however, is a calculated risk which every surgeon has to take if he expects to cure an indirect inguinal hernia and save the cord Unless he does close the structures tightly, he may expect a recurrence Atrophy of the testis is rare even with a very tight closure of the internal ring The method of Lytle, in which the cord is fixed to the edge of the internal ring by suture (fig 4) to prevent a new hernia sac from being dragged down by traction on the cord, seems to have merit

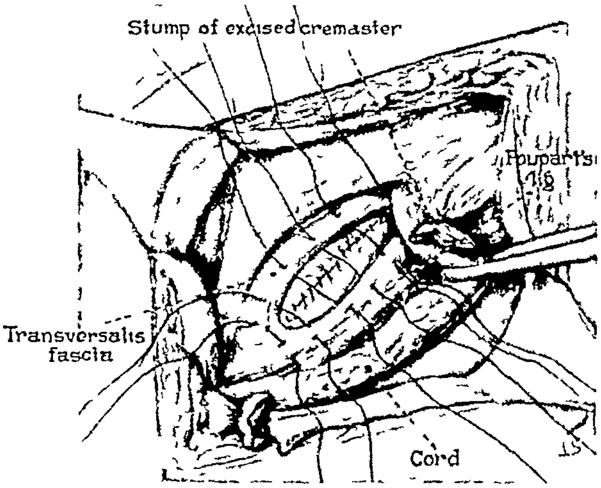

Fig 3 —Transversalis fascia being closed This should be closed carefully in all cases It is much stronger in some cases than in others It should be closed snugly around cord at internal ring

Removal of Extraneous Tissue—Before any type of plastic repair is attempted, all extraneous tissue, such as cremaster, areolar, or adipose tissue, should be thoroughly cleaned out of the canal Also, all adipose and areolar tissue should be removed from any structures to be used in the plastic repair This is highly important It has been demonstrated experimentally[10] that areolar or other intervening tissue between sutured structures results in a thin, filmy, flimsy type of union, instead of the good solid union that can be obtained if such intervening material is removed before the structures are sutured together

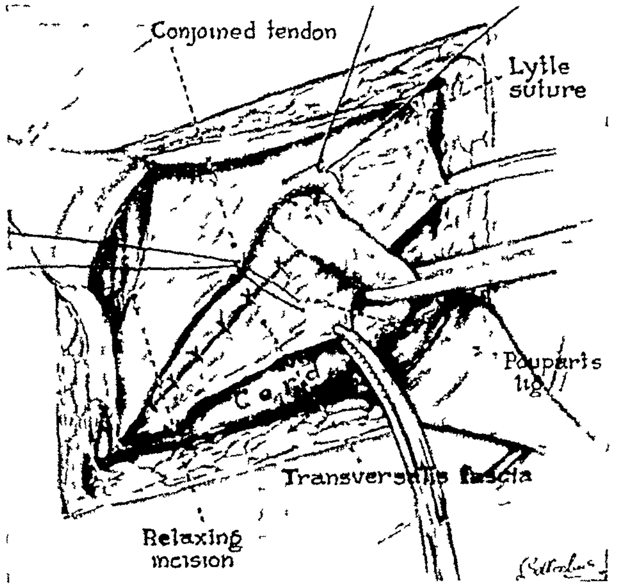

Fig 4 —Transversalis fascia has been closed In those cases in which it is bulging, it should be converted into a flat surface by puckering sutures A Lytle suture is being placed above internal ring, approximating structures about cord there and transfixing some tissues of cord in order to prevent a dragging down on peritoneum by that structure, thus possibly producing a new hernia Conjoined tendon is about to be sutured to Poupart's ligament This is done only in those patients in whom it is felt from the nature of the anatomy, that the closure would be stronger by so doing

Conjoined Tendon—If the conjoined tendon is to to be used in the repair (fig 4), one should be able to bring it down to Poupart's ligament without tension This can readily be done in most instances by using the relaxation incision in the sheath of the rectus muscle If the transversalis facia is strong and the opening in it has been well closed, it seems hardly necessary to bring the conjoined tendon to Poupart's ligament If it seems to the surgeon that the closure would be stronger by so doing, though, there is no reason for not doing it Each case is an individual case, and the use of the structures used in the plastic repair should be made to the best advantage on an individual basis I seldom find it necessary or advantageous to suture the conjoined tendon to Poupart's ligament, even when it is felt that the transversalis fascia might become weakened at some later date In these cases a piece of tantalum gauze used to reinforce the entire area has proved to be sufficient

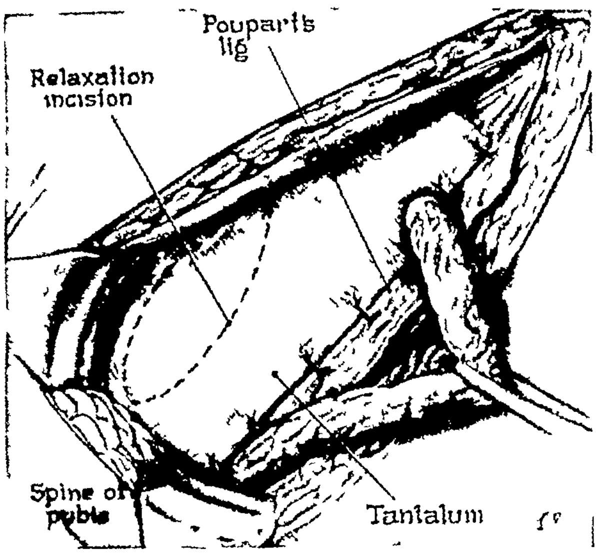

Fig 5—Entire area, including the relaxation incision in sheath of rectus has been reinforced by a piece of tantalum gauze The size of this piece is generally 4 5 to 5 in long by 2 to 2 5 in wide Only lower or outer edge is sutured to Poupart's ligament with interrupted sutures of silk It is not necessary to turn edges under Mesial, or inner, edge should be cut so as to fit snugly into line of fusion of aponeurosis of external oblique to sheath of rectus However, it should not be too wide, or buckling will ensue when edges of aponeurosis of external oblique are approximated Sutures are unnecessary, except as shown, because aponeurosis of external oblique, when put back into its normal place, securely holds tantalum gauze in place

Tantalum Gauze—Tantalum gauze has been proved to be most efficacious in those patients who have tissue deficiencies or very weak tissues It has the advantage over fascia flaps of not giving trouble in the presence of infection[11] Fascia flaps slough out if infection is encountered, while tantalum gauze remains in place and the resultant cure is just as strong as if there had been no infection Tantalum gauze is especially valuable in recurrent hernias When I first used it in inguinal hernia repair, I used a very small piece—a long narrow strip just wide enough to cover the first suture line (conjoined tendon to Cooper's ligament) This resulted in a recurrence Later I used it simply to cover the Hesselbach triangle area[12] In one patient in whom it was so used in repairing a direct hernia, an indirect hernia appeared a year or two later Possibly enough attention was not paid to closing the internal ring at the first operation Since then I have been using the method depicted in figure 5, using the gauze to cover the entire hernial region and making a snug V-shaped vent for the cord at the internal ring

Aponeurosis of External Oblique—In their original operations both Halsted and Bassini simply approximated the edges of the two flaps of the aponeurosis of the external oblique in making their closures The edges of these two flaps were first overlapped by Lucas-Championnière, of France The procedure was popularized in this country by E Wyllys Andrews, of Chicago After him, the practice of imbricating the flaps of the aponeurosis became pretty general here I used it routinely for years I have abandoned the practice (fig 6), however, except in those few cases in which the flaps are so loose that the imbrication may be accomplished without any tension As a rule, this is not the case, and the flaps cannot be overlapped without tension This is highly undesirable Anyway, especially in large hernias with poor tissues, the external inguinal ring is large and the aponeurosis of the external oblique is poor in that area, so that successful overlapping is difficult or impossible in the area where strength is most needed Furthermore, the roof of the inguinal canal is not the important part in preventing a hernia recurrence It is obvious that the floor is the important part and that, if the floor is not strong, a recurrence is invited If a new hernia appears through the floor of the canal, the patient already has his hernia, no matter how strong the roof is In those patients with poor tissues the floor of the canal can be strengthened by the use of tantalum gauze, as indicated above Then it does not become highly important to depend upon the overlapping of a weakened aponeurosis of the external oblique in the Hesselbach triangle area to reinforce that region

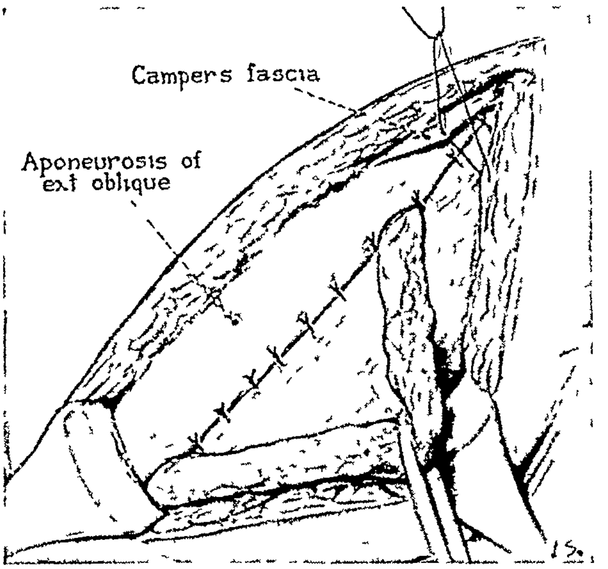

Fig 6—Aponeurosis of external oblique has been closed with interrupted sutures of silk Operation is now finished except for closing subcutaneous tissue and skin Former is closed with interrupted sutures of fine silk, and latter, with fine silk continuous sutures

Cooper's Ligament Repair—The method of Cooper's ligament repair was first used by Lotheissen[13] in 1898 It has recently been popularized in this country by McVay and Anson[14] After publication of the latter authors first paper on the subject, the method was pretty universally tried here There is reason to believe that it is not now as widely used as it formerly was,[1] although a few surgeons use it routinely The method is a lifesaver in certain types of tissue defects, but I believe that its routine use is improper anatomically, in spite of the seemingly logical argument of McVay and Anson that to suture the conjoined tendon to Poupart's ligament is to transpose fascia planes, the conjoined tendon being in the same fascia plane as Cooper's ligament, while Poupart's ligament is in the same fascia plane as the fascia lata and the aponeurosis of the external oblique Even so, when the fascial structures are strong in Hesselbach's triangle, those structures have to be disrupted in order to expose Cooper's ligament, so as to suture the conjoined tendon to it This seems to me undesirable It is true that some surgeons suture the conjoined tendon to Cooper's ligament without exposing the ligament This is an improper procedure for two reasons In the first place, if intervening structures are left between the conjoined tendon and Cooper's ligament, firm healing cannot be expected[10] In the second place, there are frequently aberrant vessels in this area, which may be punctured by blind suturing and cause severe hemorrhage or even the external iliac vein itself may be injured I use the Cooper ligament repair in those patients in whom the anatomic findings are such that I believe the repair will be stronger with the use of Cooper's ligament than it would be with the use of Poupart's ligament This seems to me to be the crux of the situation— to get the strongest repair, no matter what structures are used in making the repair The Cooper ligament repair is ideal in those patients in whom the inguinal ligament has been cut at a previous operation or in whom it is weak or frayed I use it routinely in operations for recurrent femoral hernia

Suture Materials.—Silk and cotton are the popular suture materials for hernia repair in this country I strongly feel that they are the best suture materials (now available) in all clean surgical cases There is very little choice between the two materials Both keep structures in apposition until strong healing takes place, and both give trouble in the presence of infection I believe that it can be categorically stated that absorbable surgical suture (catgut) should never be used as a suture material in hernia repair The success of the repair depends upon having the important structures, which are sutured together in making the repair, stay in apposition until firm healing takes place Harvey and his co-workers have shown that it takes 10 to 14 days for such healing to occur The wound does not become firmly consolidated until about two months after operation It has been amply demonstrated that the tensile strength of absorbable material in buried sutures is variable and that in a great many cases it cannot be depended upon to hold structures in apposition until firm healing takes place Parsons reported that the recurrence rate at the Presbyterian Hospital in New York was four times as great when absorbable surgical suture was used as when silk was used The statement is frequently made that the former is better now than it was 20 years ago This is unquestionably true However, Madsen[15] has recently made extensive studies on suture materials In a comparison of silk and chromic absorbable sutures, he found that, when those sutures were placed in fascia, they initially had the same tensile strength After six days the silk sutures maintained their initial tensile strength in nine out of nine cases, whereas only three out of nine chromic absorbable sutures were reliable Madsen also showed, as had been amply demonstrated before,[16] that there was a marked cellular reaction around the absorbable sutures In view of these findings, it seems to me that it is only to court disaster to use absorbable surgical suture as a suture material in hernia repair It is true that some of the patients in whom this material is used will remain cured, but the incidence of recurrence is much higher

Some surgeons still raise objection to using silk or cotton, claiming that they cause trouble in the presence of infection and often a persistent sinus tract This is unquestionably true However, frequently the offending silk or cotton suture may be fished out with a crochet needle or with a very small ear curet If this method is not successful, it seems to me far more desirable to have to open an occasional sinus tract under local anesthesia and remove an offending suture than to run the risk of the large incidence of recurrences which one unquestionably runs in using nonabsorbable sutures

In order to obviate the trouble that silk or cotton causes in the presence of infection, some surgeons use stainless steel wire as suture material in hernia repair I do not believe that this is desirable because of the tendency of the wire sutures to cut through the tissues Furthermore, I have recently operated on two patients with recurrent hernias, in both of whom the previous operation had been done two years before, and in whom there were abscesses around heavy loops of wire, with resultant sinus tracts If smaller wire had been used, the chances are that the abscesses would not have occurred However, the finer the caliber of the wire, the greater is the chance of cutting through

Whatever suture material is used, the importance of not "cutting on the knot" should be again stressed Too many house men are still being taught to cut on the knot The important experimental work of Price has shown that any suture material, even wire, will become untied if the suture is cut on the knot He found that the suture should be cut so that the ends left are at least 2 mm long

Statistical Data

In the statistical data here furnished, reference is made to the number of actual hernias operated on It is felt that it will only becloud the issue to talk about bilateral or unilateral hernias It is my feeling that there is no more reason for having a recurrence when the patient has two inguinal hernias than when he has only one, if the case is properly managed It is my practice, in operating on a patient with bilateral inguinal hernias, to operate on the worst side first If, after completing the operation on that side, it is felt undesirable for any reason to operate on the second side at the same time, I defer the operation on the second side, no matter how anxious the patient may have been to have both sides operated on at once By following this practice, I believe that as good results can be obtained in patients with bilateral hernias as in those with only single hernias, despite the fact that most recorded statistics are to the contrary The poorer results in operating on bilateral hernias are probably due to poor judgment in routinely doing both sides at once, in spite of the conditions found at time of operation

In the series here reported, there was probably the usual proportion of cases of bilateral hernia The proportion, however, may have been slightly less than the average, owing to the fact that a great many cases were recurrent cases However, in a great many of the cases the recurrence was bilateral

Four hundred thirty-six hernias are reported in this series Of that number, 99 may be considered ordinary run-of-the-mine cases which were easy to cure, provided that a proper and careful operation was done Three hundred thirty-seven of the cases, however, might be considered far from run-of-the-mine in that the hernias were associated with poor tissues, there were large defects, or the hernias were large or recurrent These cases may be divided into the categories shown in the accompanying table ('sliding,' as used in the table, means sliding hernia of the large intestine)

Categories of Hernias

Primary Hernias with Poor Tissues	
Indirect	61
Direct	[illegible]
Saddlebag	36
Scrotal	38
Sliding	20
Scrotal sliding	20
	246
Recurrent Hernias	
Once recurrent (4 scrotal 3 sliding)	49
Twice recurrent (2 scrotal 3 sliding)	31
Thrice recurrent	7
Four times recurrent	3
Seven times recurrent	1
	91

Of the 91 recurrent hernias, 46 were direct, 34 were indirect, and 11 were saddlebag These figures pretty well coincide with reported figures from other authors on the nature of recurrent hernias It was obvious in some of the indirect recurrences that the sac had not been obliterated at all at the first operation, because in several of these cases the sac was of the congenital variety with the testis still in it This is a sad commentary on the operation for hernia as performed by some surgeons Undoubtedly the situation is improving, but there is still room for improvement

Only five cases in this series were strangulated In five cases of huge scrotal sliding hernias it was necessary to cut the oblique muscles in order to reduce the huge mass of intestine through the internal ring This method has been previously described [17] In only four cases was it considered necessary to transect the cord I believe that this is only necessary in those few cases in which there is so much cartilaginous scar tissue due to previous operations that the presence of the cord would be an actual deterrent to a cure of the hernia Ordinarily this is not the case, the cord can be left, and the structures snugly sutured about it at the internal ring

In two cases the bladder was entered In both of these cases there was a sliding hernia of a diverticulum of the bladder, with only the mucosa of the bladder forming the wall of the diverticulum The usual bladder musculature was absent, to warn the surgeon that he was near the bladder These cases have been reported elsewhere [16] In a third case a diverticulum of the bladder was encountered but was recognized before it was entered In the series there were many cases of sliding hernia of the bladder in direct hernias, but these presented no special problem

In a large proportion of the 337 special cases tabulated above, either tantalum gauze or cutis grafts (14 cases) were used as reinforcement materials

Results

Realizing that there is no such thing as a completely satisfactory follow-up system, I have tried to obviate the defects of the periodic follow-up by trying to keep in constant contact with my patients It is my practice to check hernia cases every six months for the first two years and after that once a year as long as the patients are willing to come back Most of them are very glad to come back A great many who live in distant cities come back If they do not, they are at least written to, and a report is obtained from them or from their physicians In spite of this, there are always a certain number of patients who through indifference or change of address are lot sight of Only those who could be followed up are included in this series

There were no deaths in the series, although many of the patients were in the aged group, being in the 70s and 80s (the oldest was 89 years of age) Most of the aged patients had large disabling hernias with poor tissues, and they often had associated debilitating diseases Most of these were operated on under spinal or local anesthesia

In a great many of the recurrent cases, the anatomy had been badly distorted by previous operations, and frequently Poupart's ligament had been cut at one of the previous operations The easiest recurrent hernias to repair are those in which the preceding surgeon did little or nothing at the time of his operation, not even removing the indirect sac Fortunately we are seeing fewer of such cases

There were two recurrences in the patients here reported on Both of these were early cases in which tantalum gauze was used as a reinforcing material before the technique for its use had been well developed One patient was an older man who had a twice recurrent hernia and exceedingly poor tissues A Cooper's ligament repair was done The suture line (conjoined tendon to Cooper's ligament) was reinforced by only a narrow piece of tantalum gauze, just wide enough to cover the suture line Experience soon showed that this was not sufficient (as recurrence was prompt) and that, if tantalum was to be used, the entire area should be covered This patient was reoperated on by me and has now been well for seven years since the second operation

The second recurrence was in a woman with flimsy and frail tissues, in whom the conjoined tendon had been sutured to Poupart's ligament and the suture line reinforced with a narrow piece of tantalum gauze This proved to be as inadvisable as in the case just mentioned This patient was also reoperated on by me and remained well for three years, until she died of hemorrhage from a ruptured esophageal varix, which was due to cirrhosis of the liver

In a third case in which I used a piece of tantalum gauze to cover the Hesselbach triangle area[12] in operating for a recurrent direct hernia, an indirect hernia appeared two years later The direct repair was still strong and was not molested when the indirect hernia was repaired The appearance of the indirect hernia would ordinarily be called a recurrence However, the patient had never had an indirect hernia So, how could it be a recurrence? The possibility must be borne in mind, of course, that at my first operation on this patient I may have missed an indirect hernia that was acutally there at the time, as I had not examined the internal ring through a LaRoque muscle-splitting incision It was this experience that led me to abandon using a small piece of tantalum gauze in inguinal hernia repair and to use the present method (fig 5) of covering the entire hernial area This is essentially the method used by Throckmorton except that I do not turn the edges of the tantalum gauze under and suture only the lower edge to Pouparts ligament, depending upon the aponeurosis of the external oblique to hold the tantalum in place

Of the 436 patients whose cases are here reported, 50 were operated on less than a year before the time of writing There have been no recurrences in them The other 386 cases have been followed from 1 to 22 years While it is true that some hernias do recur after a period of many years, it is my feeling that most recurrences take place within the first six months and nearly all within the first two years Naturally, no one can be absolutely sure that a hernia will not recur as long as the patient is still alive

Of the 386 patients operated on more than a year ago, 45 have been well 1 year or more, 49, 2 years or more, 43, 3 years or more 42, 4 years or more, and 207 have been well from 5 to 22 years

The recurrence rate in this series is 0 46%, if only the two cases of actual recurrence mentioned above are included If the third case, in which an indirect hernia followed two years later after the repair of a direct hernia, is included, the recurrence rate is 0 69% Experience in checking these cases over a number of years makes me believe that, as the years go by, this percentage will not be materially increased This may seem like an unjustifiable statement Yet, it is the firmness of the repair at repeated yearly examination which gives one faith in the methods used It is especially noteworthy how strong the repair feels years afterward in those cases in which tantalum gauze has been used

Conclusions

I am aware of the fact that other surgeons who have used other methods of repair of inguinal hernia have sometimes obtained as good results There are unquestionably many methods that may be used in successful hernia repair The important thing is for the surgeon to realize the importance of exercising infinite care and pains in every single step of the operation, no matter how inconsequential the hernia may seem to be If this is done, success may be attained with many methods, if it is not done, failure is invited with any method

The methods here described are felt to be dependable and have given me a high degree of success in the repair of this widespread and troublesome condition

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The number of literature references has been reduced to a minimum in order to conform to editorial policy The author will be glad to furnish a full literature reference list to anyone desiring it

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ORGANIZATION AND POSITION OF MEDICINE TODAY

Gordon F. Harkness, M.D., Davenport, Iowa

• *The primary and absorbing interest of the physician is to give the best he has for the benefit of the sick person. Nevertheless, he must also give thoughtful consideration to the changes in the social fabric and to the philosophy and economics of modern living. Organization is necessary, and the success of a democratic organization depends on a sense of responsibility in its members. They should be aware of the constructive work that is being done. No other group has demonstrated a greater devotion to human welfare or contributed more to science than the medical profession. Its humanitarian and scientific achievements constitute a wonderful heritage, and it is the individual physician's responsibility and duty to help preserve it.*

The American Medical Association is your association. The ramifications of the A. M. A. are many. It should be a sort of guiding light to all of us, remembering that it is only an amalgamation of component parts—first, of the state societies and, then, in turn, of their component parts, the county medical societies. It is to be remembered that each of these units has its inherent rights and responsibilities. No matter to what special field of medicine one may limit himself we are all doctors of medicine and have an individual responsibility relative to measures for the common good, for the benefit of humanity, and for the protection of our professional interests.

The A. M. A., recognizing scientific progress and the consequent development of more specialized fields of medicine, has instituted scientific assemblies of these special groups at its annual meetings. It has also recognized that in its organizational form it the House of Delegates, whose members are chosen by the state organizations, is the final authoritative body. It has gone further and recognized that to be truly democratic it must permit special fields of medicine to have a minority representation and that it must give each scientific section the right to elect one delegate to represent that section. In that capacity I have tried, for a number of years, to represent the Section on Laryngology, Otology and Rhinology to the best of my ability.

The House of Delegates works a good deal like our national Congress. A great mass of resolutions is introduced each session. The resolutions are referred to reference committees, which expedite them and give them thoughtful consideration. Here any member or delegate can appear and offer his arguments for or against any resolution. Then the committee brings its report relative to each resolution to the House of Delegates, which alone has the final authority. Much of a delegate's work is accomplished before the reference committees, though he always retains the right to present his arguments on the floor of the House.

Problems of Delegates

In the beginning some of the section delegates found themselves very much alone, lone mavericks, as it were, though my own state delegates always took me in as one of their own. Several years ago, the section delegates formed an informal, intimate unofficial organization. Two breakfasts are held during each session. It is in no sense a small political block. No votes are ever taken, no minutes are recorded, and no voting obligations are asked of each other. But it does give a section delegate an opportunity to explain any problems he might have and to obtain the aid of sympathetic fellow delegates who might be interested in helping to promote his ideas. It takes time for a delegate to familiarize himself with the procedures and to learn how to conduct himself most effectively.

I would like to mention just one problem, the most important and difficult one that I have encountered since I have represented this section in the House of Delegates. It was difficult primarily because, in representing the section and its members wishes I found myself in opposition to the views of the Board of Trustees. Let me emphasize, this is no criticism of the Board. No one holds it in greater respect, as a body, than I do. Its members are earnest gentlemen, giving of their time and effort for the benefit of the medical profession. As various problems arise, these men describe the picture as they see it.

This problem concerned the status of the dental-oral surgeon on the hospital staff and the limitations of his field. This section and others felt that there was a deliberate attempt by this group of the dental profession to invade the practice of medicine and surgery. This was unfortunate, because the medical and dental professions should be working together as a team. All that was proposed from the House of Delegates was a statement of approved policy without in any way invading the inherent rights of local organizations. It took three years to get this statement established as originally requested. This was accomplished with each group giving the other credit for sincerity of purpose. Although it may have appeared that I carried on a lone controversy, I had valuable assistance indirectly from individuals and from some groups.

The incident is closed, and an account of it might be misinterpreted if published, but I do think that members of the A. M. A. are entitled to know something of the trials and tribulations of a delegate and to be given an epitome of the controversy. The House of Delegates affirmed my request in 1953 and reaffirmed it in 1955. I sincerely hope that this particular controversy is now ended.

Address of honorary chairman, read before the Section on Laryngology, Otology and Rhinology at the 105th Annual Meeting of the American Medical Association, Chicago, June 12 1956.

Medicine Today

Some of my thoughts relative to our profession as of today are based on the following premises

1 Scientific medicine stands in the foreground of the scientific achievements of the past 50 years Its position cannot be disputed

2 The younger men in our profession have the same ideals that prompted those of us who are now in the twilight zone of professional life when we subscribed to the Hippocratic Oath

3 No other group has demonstrated a greater devotion to human welfare More harm is done, in influencing public attitude, by one doctor who strays from the path of rectitude than can be compensated for by 100 altruistic professional or charitable services

4 The accomplishments of medicine had their birth and development during an era of individual freedom and acceptance of individual responsibility A similar acceptance of responsibility by the American people has brought our country to its present preeminent position

5 We have in our profession a wonderful heritage, and it is our individual responsibility and duty to help preserve

Socialized Medicine—The socialist trends that have become a part of our lives in the last 30 years, trends that have become a part of governmental assumption, are disturbing It is axiomatic that the more functions the government assumes the less individual freedom you have When such trends become a part of the social fabric, their rescindment is far more difficult to attain than the original accomplishment Why have these things happened? Is it due to a changing philosophy of life? Is it due to a changing economic phase of life or to a political promise of a mass utopia? I do not pretend to have the specific answers Call it a combination of factors, but I feel that complacency on the part of individual members of our profession is our greatest weakness In what way are we to blame? Have we failed individually? A little self-analysis is always good for any individual or group

In approaching this problem, every doctor, no matter how limited his field may be, must realize that ultimately government supervision of caring for the ill will be decided not by the medical profession but by the public Here the political factor plays a big role This brings us to a realization that it is our responsibility to convince the public that we can do a better job medically and economically and voluntarily than can any government bureau

Public Relations—Today it is popular to turn to our so-called public relations programs I never heard of public relations for the medical profession when I started to practice medicine The doctor was a very highly respected man in his community Let us bear in mind that the keystone of good public relations is the attitude of the individual doctor toward his individual patient, rich or poor Yet the doctor, individually, is important in his influence beyond his own small sphere So, acknowledging this importance, it becomes necessary to turn to organized medicine to facilitate mass education Recent surveys have shown that lay individuals overwhelmingly still think well of their own doctors, but many are in doubt concerning the medical profession as a whole Why do they have such a feeling? It is our responsibility to discover the reasons and to correct them

Organized medicine has established, through many state organizations, so-called grievance committees and has advertised them to the public I commend this, though I would prefer use of the word 'adjustment" rather than 'grievance " While the word 'grievance' crystallizes the committees' purpose in the public mind, at the same time it carries with it the idea that there must be something wrong if the medical profession feels the necessity of establishing such committees Since most of these grievances are economic, I would suggest that, when information about the setting up of these liaison committees is disseminated, a statistical report be included showing what a small factor these grievances play in economic and professional relations Let us be positive in our public relations and not engage in a defensive campaign It is deplorable that there are articles in lay publications, some of them by physicians, that emphasize the derelictions of a few and imply that if a doctor belongs to certain organizations he is infallible but that tend to leave doubt in the reader's mind as to those doctors not associated with these organizations

Can it be that the cost of medical care is a predominating factor in affecting public attitude? Surveys do not support this contention, particularly as to the individual's feelings toward his own physician (Few people realize that with the advances in scientific medicine the actual over-all cost of good medical care, preventive and therapeutic, is less per capita than years ago Many diseases are now practically nonexistent, and the period of illness has been markedly reduced in many other diseases) I think the burden of medical care has a more fundamental basis, economically speaking

It is to be remembered that there are four fundamental essentials in living They are food, housing clothing, and medical care The first three factors are constant and can be provided for by the employed individual through budgeting according to his income, but the fourth, medical care, is not a constant factor The time of its need is unpredictable There may be long intervals when it does not enter the picture and then it may strike with overwhelming force and almost cause a financial disaster The only answer for this is budgeting regularly through insurance Let me add that the so-called social security program, now a part of our government fabric, makes no claim to being an actuarily sound insurance program It is in no way a protection from the cost of illness In fact, it is only an acceptance by government of certain required payments from its citizens, without reserve funds being set aside on an actuarial basis, and a promise by government to meet specified obligations by future taxation if current funds do not meet them

The only way left for the individual to meet these unexpected costs in this fourth essential factor of living is through budgeting for it by means of insurance We have good commercial companies offering this protection on an indemnity basis We have the Blue Shield programs going even farther and offering full service, within certain family income limits, through the cooperation of the medical profession These programs are the profession's answer to the socialization of medical care, but we have to demonstrate to the general public that we can provide this protection with better care than can be done through government domination Government domination has shown its inadequacies in other countries

Comment

I fully realize that this is rather an unusual theme to present before a scientific section My only reason for presenting it is a deep personal conviction that the greatest danger to our heritage is our own individual complacency I know of no group of more individualistic men and women than those in the field of medicine Our primary and absorbing interest is to give the best we have for the benefit of the sick individual We cannot retire to the cloisters of scientific medicine It behooves each one of us to give thoughtful consideration to the changes in our social fabric and to the philosophy and economics of modern living We must realize that as individuals our influence is limited Today, as never before, organized efforts have become a necessity No matter how limited one's field in medicine may be, each one of us is a unit in the entire field of medicine

Organization in medicine crystallizes itself in the A M A The responsibilities of the A M A have multiplied many times, yet, it remains a democratic organization through its component units I find that there are far too many in our own ranks who give little thought to and have little knowledge of the constructive work that is being done Your association is the only organization that can speak for all of us, not as a dictatorship or an oligarchy, but as a democratic organization But, it is to be remembered that the success of any democracy depends upon the assumption of individual thoughtful consideration and responsibility by its members

We are fortunate in having men who give their time, often with personal sacrifice, in an endeavor to solve our problems relative to human welfare Destructive criticism accomplishes nothing, but constructive criticism should always be welcome The latter often has its birth in the mind of an individual who after careful thought realizes that organizational efforts are a necessity Any organization is only as strong as its component parts, and the ultimate units are you and me

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CLINICAL NOTES

SUBCUTANEOUS UROGRAPHY IN INFANTS

Bernard S Epstein, M D, New Hyde Park, N Y

Radiologic examination of the urinary tract in infants is frequently a trying experience because of the technical aspects of venipuncture Urography may be accomplished by the intramuscular injection of a 15% to a 35% solution of iodopyracet (Diodrast) compound,[1] but in my experience this has been painful to the infant The addition of hyaluronidase for the subcutaneous or the intramuscular administration of iodopyracet has been recommended by Olsson and Lofgren[2] and Astley,[3] while Fainsinger[4] and Begley[5] prefer the intramuscular use of the contrast medium after the site of injection has previously been prepared by the administration of hyaluronidase

Subcutaneous urography was used by Nesbit and Douglas[6] in 31 patients of various ages They used 20 cc of a 35% solution of iodopyracet diluted to 100 cc with isotonic sodium chloride solution, half of the mixture was injected over the angle of each scapula Others who recommended the subcutaneous route were Higgins and Shively[7] and Mullen[8] One 2-year-old child, in whom a 50% solution of diatrizoate (Hypaque) sodium was administered intramuscularly, with satisfactory results and with no ill-effects, has been mentioned by Mahoney[9]

For many years I have routinely employed subcutaneous pyelography in infants, administering 15 cc of iodopyracet compound diluted with an equal amount of sterile isotonic sodium chloride solution or distilled water and injecting half of the total mixture at a site adjacent to the angles of the scapulas or to the lateral aspect of each thigh I continued to use this method with a 50% solution of diatrizoate, and the present report concerns such subcutaneous pyelography in 25 patients, all of whom were infants less than 16 months of age Ten were less than 3 months old, including 4 newborn infants, three infants were between 3 and 6 months old, six were from 6 to 12 months old, and four were between 12 and 16 months of age Two patients had 2 examinations each, so that the total number of studies was 27

Roentgenograms were taken at intervals of from 10 to 20 minutes for at least one hour The concentration of the contrast medium in the kidney pelves and the bladder usually was best after about 15 to 30 minutes The excretion of the subcutaneous deposits of diluted diatrizoate was slow, as evidenced by the amount of radiopaque material remaining in the subcutaneous tissues during the examination The injections were accomplished rapidly and were relatively painless except for the insertion of the needle and the discomfort of distending the subcutaneous tissues The patients were

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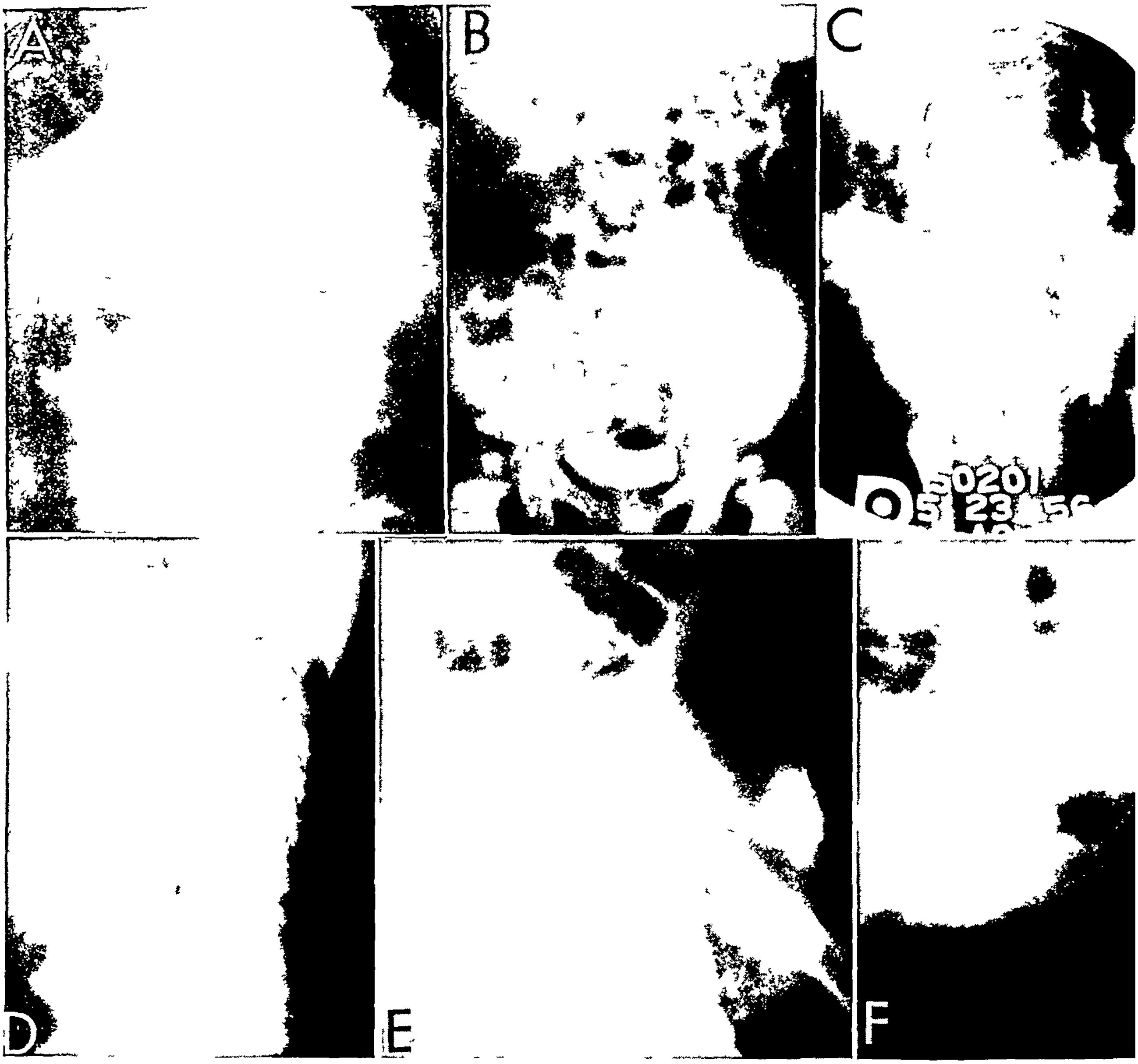
From the Department of Radiology, the Long Island Jewish Hospital permitted to lie on their backs immediately after the injections and absorption was almost complete in about two hours

An advantage of the subcutaneous route is the relatively slow absorption, which makes it possible to obtain roentgenograms over a relatively long time This permits time to view the wet films and to repeat studies when necessary for technical reasons Another advantage over the intramuscular route, as has already been mentioned, is the lack of undue pain for the child The ever-present possibility of formation of a hematoma upon intramuscular injection of any agent is, course, not to be overlooked It is for these reasons t I prefer the subcutaneous route of adminis

There were two patients in the present group whom there was poor visualization One had a co genital anomaly of the kidneys with a megaureter T second was a 15-day-old infant, in whom considera gaseous distention of the intestine obscured the kidn shadows Nevertheless, the films were sufficiently di nostic for it to be ascertained that the urinary tr was normal



A subcutaneous pyelogram in 7-month-old infant five minutes after injection of 15 cc of 25% diatrizoate sodium adjacent to e scapula None of the contrast medium is seen in the urinary tract *B*, same patient as in part *A*, 65 minutes after injection of c trast medium Kidneys and bladder are well demonstrated Almost all contrast medium has been absorbed from intrascapular a *C* subcutaneous pyelogram in 6-week-old male infant, made 40 minutes after patient had ingested 25 cc of carbonated bever Kidney pelves and calices and bladder are well opacified *D*, same patient as in part *C* Lateral roentgenogram after 50 minu Considerable amount of contrast medium is still seen in subcutaneous tissues overlying back Opacification of kidneys, ureters, bladder is adequate for their demonstration in lateral view *E*, voiding cystogram of 7-month-old baby with hypospadias Urethr well outlined Deformity of the distal urethra can be seen *F*, oblique cystogram of newborn infant with myelomeningocele Urac is filled from its bladder end about midway to umbilicus

Normal pyelograms were obtained in 11 patients, and a wide variety of pathological conditions was fied in the remaining patients (see figure) One had a hypospadias, and a voiding cystogram gave an excellent portrayal of the urethra (see figure, *E*) Another child with a myelomeningocele had a urachus patent up to a point about 2 cm from the umbilicus that could be nicely identified on lateral views (see figure, *F*) There were two patients with neuroblastomas, urethral displacement was demonstrated in one at the level of the lower part of the lumbar spine, and downward displacement of the right kidney was seen in the other An ectopic kidney in another child was confirmed by retrograde study, while still another child had a double kidney and ureter Marked hydronephrosis due to congenital ureterocele impinging on the vesical neck was present in one child

Summary

Subcutaneous urography with a 50% solution of diatrizoate (Hypaque) sodium diluted to 25% is advantageous in infants The usual dose for children up to about 16 months is 15 cc diluted to 30 cc with 15 cc injected parascapularly on either side The injections may be accomplished rapidly and with little discomfort to the patient Twenty-three of 25 films obtained were satisfactory, while the remaining 2 were of sufficient clarity to permit a diagnosis of a normal urinary tract

270 05 76th Ave

The diatrizoate sodium used in this study was supplied as Hypaque sodium by the Medical Research Department of Winthrop Laboratories, New York

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ECCHYMOTIC SKIN LESIONS IN PATIENTS RECEIVING PREDNISONE

Charles W Denko, M D
and
Leslie R Schroeder, M D, Chicago

Undesirable effects of varying severity have been noted in patients being treated with steroids that produce clinical effects similar to those of cortisone Few reports deal extensively with the occurrence of purpura, spontaneous ecchymosis, or easy bruising after the administration of these hormones Such skin lesions were noted in 18 to 34% of patients with rheumatoid arthritis receiving prednisone and prednisolone[1] Purpura was also reported as an untoward effect in arthritic patients maintained in an induced hyperadrenal state[2] When patients received cortisone, hydrocortisone, or adrenocorticotropin, the incidence of such skin disturbances was placed at 2 to 5%[3] No blood or coagulation studies to explain these phenomena were reported An opportunity to study this disorder in some detail was presented during the past year, when we observed a similar incidence (20%) of purpuric lesions in a group of 75 patients treated with prednisone for a variety of rheumatological disorders This paper presents an investigation of the coagulation mechanism in evaluating this bleeding tendency noted in patients receiving prednisone

Materials and Methods

All patients exhibiting purpuric lesions were women Each may be regarded as her own control, since she was observed for many months prior to prednisone therapy during which time no abnormal bleeding occurred Only two patients had histories of purpura one (case 10) while receiving cortisone 3 years previously, and one (case 7) while receiving an experimental drug 15 years previously All had fair to excellent relief of their rheumatological distress on receiving prednisone initially

The physical findings in these patients before treatment were those usually observed in patients with various arthritides Routine blood and laboratory studies included repeated determinations of leukocyte count, hemoglobin level, hematocrit, erythrocyte sedimentation rate, differential count, and serum albumin globulin, and C-reactive protein levels In general, the patients with rheumatoid arthritis and systemic lupus erythematosus had laboratory findings consistent with those usually noted in these disorders The changes in blood studies noted after treatment with prednisone were those usually observed after use of this drug, e g, a decrease in serum C-reactive protein level

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From the Department of Medicine, University of Chicago Dr Denko is now with the Rackham Arthritis Research Unit, University of Michigan Medical School, Ann Arbor, Mich

Patients also demonstrated reduced inflammation in the involved joints, with a decrease in swelling, redness, and heat and with an increase in mobility

The following studies on the coagulation mechanism were done in nine patients Rumpel-Leede test, platelet count, prothrombin time, prothrombin consumption time, plasma recalcification time, clot retraction, bleeding time, clotting time in glass and in siliconed glass tubes, and fibrinogen level The methods used were as follows Rumpel-Leede test by sphygmomanometer cuff applied to arm for five minutes at a pressure between systolic and diastolic, usually 90 to 100 mm Hg, and determination of platelets by direct count[4] of prothrombin time by a modification of the one-stage Quick method using Simplastin[5], of prothrombin consumption by the one-stage method[6], of plasma recalcification time by the method of Rosenthal[7], of bleeding time by Duke's method[8], and of fibrinogen levels by the Ratnoff technique[9] Determination of clotting time in glass was done by the three-tube modification of the Lee-White method

Blood Studies in Patients Exhibiting Ecchymotic Skin Lesions While on Prednisone Therapy

		Case No														
Blood Study	Normal	1	2	3	4	5	6	7	8	9	10	11	12	13	14*	15
Rumpel Leede test	0	+	+	+	+	+	+	+	+	+	+	+	+	+		+
Prothrombin time sec	11 15	11	11 5	12	13 5	13	13	14 5	13	13						
Prothrombin consumption sec	>23	21	29	35	34 5	25	37	60	35	43						
Recalcification time sec	<150	100	95	120	115	107	95	120	111	170						
Clot retraction hr	<4	1	1 5	2	1	0 75		1	1	0 75						
Fibrinogen level mg /100 ml	300-600	354	303	379	302	341	202	369	303	218						
Platelet thousand	140-440	235	198	194	322	240	167	246	192	210	200				160	
Bleeding time min	<3	1 25		3	3	2	2	2	1 5	1 7						
Clotting time in glass min	10-20	10		16	14	13	15	15	18 5	23						
Clotting time in silicone min	<90			40		33		51	45	50						
Daily dose of prednisone mg		20	10	10	15	10	15	10	10	5	10	15	10	10	15	10
Duration of treatment before purpura days		39	17	30	45	210	120	90	60	24	120	30	210	180	90	160
Other drugs given concomitantly†		ASA	ASA	None	None	Digitalis insulin	None	ASA	Iron ASA	ASA	None	None	None	None	None	Thyroxin ASA
Diagnosis‡		DA	RA	RA	RA	LE	LE	RA	RA	RA	RA	TA	RA	RA	RHD	SS
Age yr		65	50	60	37	64	38	50	25	27	48	70	56	57	12	55
Spontaneous petechiae and ecchymosis	0	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Previous history of purpura with other drugs		0	0	0	0	0	0	+	0	0	+	0	0	0	0	0
Response to ascorbic acid		Fair			Fair		Fair	Fair		Poor	Good					
Response to discontinuance of prednisone		Good	Good	Good	Good						Good	Good				

* Dr Klara Prec pediatrics department University of Chicago furnished data for case 14 The test could not be done by method outlined because of numerous spontaneous petechiae in the patient but findings were essentially positive

† ASA = acetylsalicylic acid

‡ DA = degenerative arthritis RA = rheumatoid arthritis LE = systemic lupus erythematosus TA = temporal arteritis RHD = rheumatic heart disease SS = systemic sclerosis

Comment

A summary of the studies on coagulation is presented in the table A positive Rumpel-Leede test occurring in all patients indicated consistently some disturbance of normal capillary function, a decrease in capillary resistance The clinical findings of ecchymotic skin lesions in patients with hypercortisonism probably reflect this decreased capillary resistance Interestingly, capillary resistance has been reported to increase after administration of cortisone or corticotropin in patients with rheumatoid arthritis[10] Furthermore, cortisone and prednisone are widely used t control ecchymosis and spontaneous petechiae i hemorrhagic diseases

The skin areas involved, in the order of frequenc of involvement, include upper and lower legs an arms, thorax, and breasts Ecchymoses have bee observed as early as 17 days after the initiation o prednisone therapy and as late as seven months afte beginning treatment This bleeding tendency has occurred in patients receiving as little as 5 mg of prednisone per day Prednisone alone or prednisone plu acetylsalicylic acid comprised the usual therapeut program Most patients had been observed previousl for many months while receiving acetylsalicylic aci during which time they had developed no ecchymotic lesions In two patients (cases 4 and 9) menstrual flow was increased in intensity and duration

Ordinarily the skin lesions were irregular in size, one square millimeter to several square centimeters in area The bluish-purple color faded gradually after a few weeks of reduced prednisone dosage The Rumpel-Leede test remained positive for four to eight weeks after prednisone therapy was discontinued In two patients (cases 4 and 9) focal areas of tenderness, 1 to 2 cm in diameter, developed with a firm nodule, 1 to 2 mm in diameter, centrally placed These areas became ecchymotic one to two days after appearance The widest involvement, showers of petechiae, occurred in the patient (case 14) receiving the highest dose of prednisone After this patient died of rheumatic heart disease, the skin lesions were examined microscopically, but no evidence of embolic phenomena was found

Ascorbic acid, 50 mg given twice daily, produced a slight improvement in the skin lesions in some patients Discontinuance of prednisone therapy produced a complete clearing of the skin in several patients For clinical reasons prednisone therapy was continued in other patients for periods ranging to nine months, without any significant worsening of side-effects

The alteration in platelet or capillary physiology produced by prednisone in these patients is difficult to explain Speculation leads one to consider some metabolic derangement involving ascorbic acid, since ascorbic acid appears to decrease somewhat the incidence of spontaneous ecchymosis Moderate declines in fibrinogen level in two patients (cases 6 and 9) indicate some interference in fibrinogen synthesis, an effect of steroids noted previously[11] Perhaps some property of the platelets or capillaries not studied in these tests may be altered Whatever the derangement in the capillaries or platelets induced by these steroids, it is apparently more characteristic of prednisone than of the other compounds

Summary

The occurrence of purpura, ecchymotic skin lesions, and easy bruising was noted in 20% of a group of 75 patients receiving prednisone for a variety of rheumatological disorders In all of these patients a positive Rumpel-Leede test was found Platelet and coagulation mechanism studies revealed the following normal studies prothrombin time, prothrombin consumption, clot retraction, platelets, bleeding time, and clotting time Moderate declines in fibrinogen levels occurred in two patients Some benefit from treatment programs was noted

Addendum

Ascorbic acid, 100 mg given twice daily, has been found recently to be more effective in improving skin lesions

1313 E Ann St, Ann Arbor, Mich (Dr Denko)

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COUNCIL ON DRUGS

Formerly the Council on Pharmacy and Chemistry

Report to the Council

The Council has authorized publication of the following report Nonproprietary terminology is used for all drugs that are mentioned, when such terminology is not considered to be generally well known, its initial appearance is supplemented by parenthetic insertion of names known to be applied to commercial preparations

H D Kautz, M D, *Secretary*

MIXTURES OF ANTIBIOTICS

Harry F Dowling, M D, Chicago

The recent marketing of several novel mixtures of tibiotics has revived interest in the value of com- tions of antibiotics Various claims have been de for the superiority of a mixture of two antibiot- cs over either of the drugs used alone It is claimed that mixtures of antibiotics should be used for the following reasons (1) to produce a better therapeutic result than can be achieved by maximal dosage of either antibiotic alone (synergism), (2) to achieve a therapeutic result with nontoxic doses of two antibiotics that would require a toxic dose of either antibiotic alone, (3) to prevent or delay the appearance of resistant strains of infecting organisms, (4) to treat mixed infections in which no single antibiotic is effective against all of the organisms present, and (5) to treat seriously ill patients before a bacteriological diagnosis is made These claims will be considered in the order in which they are listed

Synergism and Antagonism

The problem of synergism was ably reviewed by Jawetz and Gunnison [1] in a report to the Council on Pharmacy and Chemistry in 1952, and more extensively elsewhere [2] Other reviews of this subject were written by Garrod [3] and Dowling, Lepper, and Jackson [4] In the present report the status of combined antibiotic therapy at the time the previous reports were written will be summarized Recent studies will then be added and the total picture evaluated

In experiments in vitro and in animals, when the effect of two drugs acting simultaneously on a microbial population is compared with the effect of either drug alone, the result may be synergism, simple addition, indifference (no increased or decreased action), or antagonism (an effect that is less than that achieved with the most effective of the two drugs acting alone) The term synergism has been defined differently by different investigators In general, it is agreed that synergism means that the antimicrobial effect obtained from the use of a combination is greater than the sum of the effects of each of the component agents acting alone The methods used to determine synergism differ greatly, however The method most commonly
used for determining in vitro whether a gi
nation will produce synergism, antagonism,
ence is the observation of the amount of
and of the drug combination necessary t
growth in the test tube or to delay growth
period of time The results are expressed as
weight of drug necessary to suppress gr
delay the appearance of growth Synergi
claimed if inhibition of growth is achie
than half the minimal inhibitory concentr
drug, plus half or less than half the minim
concentration of the second drug Biolo
ments cannot be done accurately enou
anything less than a fourfold difference
however, this method of reasoning is fa
cause there is no evidence that half the
duces half the activity of the full amount
In fact, experimental evidence shows that
is true, namely, that the weight and
activity do not have a linear relationship

An in vitro test giving results that most
lel those observed in animals and in p
subculturing of micro-organisms at inte
posure to the drugs and combinations te
determines the rate and completeness o
rapidity with which a combination of a
kill bacteria in the early hours of the
compared with the rate of killing pro
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H. D. Kautz, M.D., *Secretary*

MIXTURES OF ANTIBIOTICS

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Synergism and Antagonism

The problem of synergism was ably reviewed by Jawetz and Gunnison[1] in a report to the Council on Pharmacy and Chemistry in 1952, and more extensively elsewhere.[2] Other reviews of this subject were written by Garrod[3] and Dowling, Lepper, and Jackson.[4] In the present report the status of combined antibiotic therapy at the time the previous reports were written will be summarized. Recent studies will then be added and the total picture evaluated.

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An in vitro test giving results that most closely parallel those observed in animals and in patients is the subculturing of micro-organisms at intervals after exposure to the drugs and combinations tested. This test determines the rate and completeness of killing. The rapidity with which a combination of antibiotics will kill bacteria in the early hours of the experiment, as compared with the rate of killing produced by the individual antibiotics during the same period, is used as an index of synergism, indifference, or antagonism.

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Proved instances of clinical antagonism have been reported less frequently than proved instances of synergism Antagonism occurs only when certain rigid ratios of antibiotics are present at the site of the infection For this reason, antagonism is not often encountered clinically, since the doses of antibiotics usually administered to patients are much larger than the minimally effective doses The best clinical example of antagonism is found in pneumococcic meningitis, in which penetration of the antibiotics to the site of infection is notoriously poor Lepper and Dowling[13] reported that, when penicillin and chlortetracycline were used together in pneumococcic meningitis, 79% of patients died, whereas only 30% of patients died when penicillin was used alone in the same doses There is some evidence that the combination of chlortetracycline, streptomycin, and sulfisoxazole (Gantrisin) was less effective in meningitis caused by Hemophilus influenzae than was chlortetracycline alone

On the other hand, Ahern and Kirby[14] reported that, when penicillin and chlortetracycline were given in full therapeutic doses to patients with pneumococcic pneumonia, the results were similar to those obtained in patients who received the same doses of penicillin alone In view of the small doses of penicillin that will bring about recovery in this disease, it is obvious that penetration of penicillin to the site of infection is excellent The doses given by Ahern and Kirby, therefore, were excessive It should be noted, however, that, although antagonism was not observed, neither was there any evidence of synergism The results were as good when penicillin was used alone as when chlortetracycline was added

A recent study by Strom[15] demonstrated that antagonism occurred when the concentrations of one or both antibiotics were at or below the minimal effective concentrations He treated three groups, each consisting of 105 patients who had scarlet fever, as follows (1) procaine penicillin G, orally, in doses of 250,000 units three times a day for adults and equivalent dosage for children, (2) 0 5 Gm of chlortetracycline hydrochloride twice a day for adults and equivalent dosage for children, and (3) both antibiotics in the same dosages No difference was observed in the clinical course, number of complications, or rapidity of disappearance of hemolytic streptococci from the pharynx, but the speed and magnitude of the return of streptococci after cessation of treatment was greatest in the chlortetracycline group, least in the penicillin group, and intermediate in the group of patients who received both drugs He had previously shown that the return of streptococci after treatment was associated with the intensity of treatment Accordingly, chlortetracycline apparently antagonized the bactericidal effect of penicillin in these patients with scarlet fever

Antagonism has not been reported in individual cases, although many patients have died of endocarditis or other bacteremias despite treatment with large doses of two antibiotics Some of these deaths could have resulted from antagonism, however, conclusive proof could obviously not have been obtained, since this would have required failure of the patient to recover after use of two antibiotics and successful recovery after use of one alone Because the trend is always to administer one antibiotic first and two or more later, these criteria are never fulfilled

The evidence favoring the use of combinations of antibiotics to obtain better results than the most effective antibiotic alone can be summarized as follows Synergism occurred in the treatment of nonhemolytic streptococcic (including enterococcic) endocarditis when penicillin and streptomycin were used, in brucellosis when streptomycin was used with one of the tetracyclines or chloramphenicol, and in occasional cases of severe micrococci infections when penicillin or streptomycin was used with one of the tetracyclines or chloramphenicol Other combinations may possibly have been synergistic in occasional cases of endocarditis caused by nonhemolytic streptococci, micrococci, or Hemophilus organisms Antagonism has been demonstrated only in pneumococcic meningitis and scarlet fever when the dosages were such that only minimal concentrations of the antibiotics reached the site of infection

Reduction of Toxic Effects

The second reason given for the use of combinations of antibiotics is to achieve therapeutic results with nontoxic doses of two antibiotics that would require a toxic dose of either antibiotic alone Early reports on the use of a mixture of equal parts of streptomycin and dihydrostreptomycin sulfate appeared to show that the frequency of eighth-nerve damage was less than when either antibiotic was used alone in the same total dosage Wier and his associates,[16] however, in a recently published, careful study of 105 patients, reported that deafness was more frequent in patients who received the two drugs, whereas vestibular damage occurred more often in patients who were given comparable doses of streptomycin alone Since deafness is so much more serious than impairment of vestibular function and seems to be more commonly associated with dihydrostreptomycin, it would appear that streptomycin therapy alone should now be regarded as less likely to induce auditory impairment than the use of the combination

Prevention of the Appearance of Resistant Micro-organisms

The third reason for advocating combinations of antibiotics, to prevent the appearance of resistant strains of the infecting organism, has found practical clinical application in the treatment of tuberculosis It is now proper practice to use combinations of two or more of the following drugs streptomycin, isoniazid, and aminosalicylic acid (para-aminosalicylic acid)

Lepper and his associates[17] recently reported that the combination of novobiocin (Albamycin, Cathomycin) and spiramycin delayed for three months the appearance of resistant strains of micrococci in nasal carriers When spiramycin was used alone, the difference in the time of appearance was six weeks The percentage of strains resistant to spiramycin was *eventually as great, whether one or both antibiotics* were used Although the field of antibiotic-resistant micrococci is an important one for the use of such combinations and although results look promising, this method would seem to have limited value for two reasons First, the Micrococcus must be sensitive to both antibiotics before treatment is started, second, in order to prevent the appearance of resistant strains, the two antibiotics should always be administered together rather than singly in a given hospital (and preferably in the entire country) It does not seem likely that the latter objective could be achieved even if it were known to be worthwhile The use of combinations therefore, to delay the appearance of resistant strains will probably be restricted to the treatment of tuberculosis in the foreseeable future

Mixed Infections

The fourth reason given for the use of combinations of antibiotics is to combat the mixed flora of the gastrointestinal tract, the peritonitis that follows soilage from the gastrointestinal tract, and mixed infections of the lower part of the respiratory tract, the skin, and the urinary tract Any of the tetracyclines or chloramphenicol will lower the bacterial count of the intestinal flora as effectively as most or all of the advocated combinations of antibiotics There is good evidence[18] that the simultaneous use of polymyxin B (Aerosporin, Polymyxin B) and neomycin is more effective than either antibiotic alone and perhaps more effective than the tetracyclines and chloramphenicol This combination has the advantage that absorption from the gastrointestinal tract will not occur if proper doses are used, and, therefore, hypersensitivity is unlikely to develop

For the therapy of peritonitis, the tetracyclines have been shown experimentally to be equal and perhaps superior in effectiveness to a widely used mixture of penicillin and streptomycin If the decision is made to use penicillin and streptomycin, however, it is best to administer them separately, this allows the clinician greater flexibility of dosage and route of administration than mixtures previously prepared and dispensed in ampuls

The number of Candida organisms in the stools can be reduced by the use of nystatin (Mycostatin) in conjunction with a tetracycline, as compared with a tetracycline alone It is doubtful, however, whether the large number of candidas in the intestinal tract ever cause an infection Even if they do, all of the micro-organisms in the stool are never eliminated by any single antibiotic or combination of antibiotics When Candida organisms are suppressed, some other organism not affected by the antibiotics used, such as Proteus vulgaris or resistant Micrococcus, may become the predominant micro organism Another argument against the use of nystatin-tetracycline mixtures is that the use of nystatin extensively in a hospital will cause the appearance of nystatin-resistant strains of Candida, which are likely to become predominant in that hospital Thus, nystatin will be useless when it is needed for therapeutic purposes For these reasons, the routine use of nystatin-tetracycline combinations is not considered advisable

For infections of the lower part of the respiratory tract, the best results are obtained in chronic bronchitis and bronchiectasis with one of the tetracyclines or chloramphenicol No evidence is available that these results can be improved with combinations The use of penicillin, or a tetracycline alone, appears to be optimal therapy for lung abscess Accordingly, there is little reason for the use of combinations of antibiotics in mixed infections of the respiratory tract

During infections of the urinary tract, more than one organism is sometimes cultured from the urine Often one organism is important in the infection, the other organisms that are cultured from time to time are occasionally associated with the primary offender or are contaminants obtained in collecting or culturing the urine Repeated cultures and quantitative cultures of the urine will aid in making this differentiation In those instances in which two or more pathogenic organisms are actually causing infection, it may be advisable to use two antibiotics They should be carefully selected for their effectiveness against the infecting strains on the basis of in vitro tests

Mixed infections of the skin present a considerable problem I am unaware of any controlled studies showing that mixtures of antibiotics are more effective than single ones, or indeed more effective than methods of therapy in use before antibiotics were available Certainly it seems advisable to use measures other than administration of antibiotics whenever possible At least antibiotics that are not used systemically should be employed, to prevent hypersensitivity during treatment for a skin infection not dangerous to life An antibiotic may be urgently needed later for a serious systemic infection

Use in Unidentified Infections

The fifth and last reason advanced for the use of combinations of antibiotics is to treat seriously ill patients before a bacteriological diagnosis is made There is no objection to the use of combinations under certain circumstances if such therapy is confined to patients who require immediate treatment and in whom the clinical diagnosis of an infection is reasonably certain and if the antibiotics used are selected to combat the organisms most likely to be causing the infection It is a tragic fact, however, that many patients have been treated with two or more antibiotics who did not need to be treated before a bacteriological diagnosis was available Such a procedure delays proper diagnosis and makes it more difficult Furthermore, hypersensitivity to an antibiotic sometimes occurs under these circumstances Occasionally, resistant forms of organisms appear because the proper combinations were not used or adequate doses were not given, and sometimes the patients are actually suffering from some other disease and not from an infection If antibiotic therapy must be resorted to, an accurate clinical diagnosis is imperative in cases in which laboratory data are not available The possibility of antagonism should also be kept in mind when an antibiotic from Jawetz and Gunnison's group 1 is used with an antibiotic from group 2 Such combinations should not be administered in meningitis or in other disease states in which penetration to the site of infection is poor Each antibiotic should be given in full therapeutic doses

Danger of Carriers

One other drawback to the routine use of mixtures of antibiotics should be mentioned Abundant evidence has now accumulated to show that, in hospitals in which a number of patients are receiving an antibiotic, micrococci resistant to that antibiotic accumulate in the upper air passages of attendants and of patients who have not received the antibiotic From there they may infect wounds, burns, or the respiratory tracts of other patients By this mechanism, the physician has lost the possibility of using that particular antibiotic in serious micrococcic infections

Summary and Conclusions

A review and evaluation on the basis of currently available evidence reveal the following reasons given for the use of mixtures of antibiotics

1 For obtaining a synergistic action, mixtures of antibiotics can be used in a few diseases in which their value has been clinically proved, they may occasionally be useful in a special case outside of this group, but in general these mixtures do not produce a synergistic effect One antibiotic in a combination may even be antagonistic to the other under special circumstances Laboratory tests of the minimal concentrations of antibiotics required to inhibit growth of the causative micro-organism are seldom helpful in determining whether a certain mixture of antibiotics will be effective clinically In fact they may actually be misleading

2 For minimizing toxic reactions by using half-doses of two related antibiotics to achieve equivalent therapeutic results, a mixture of equal parts of streptomycin and dihydrostreptomycin sulfates has been used However, there is recent evidence to indicate that this combination is more likely to produce auditory impairment than do full doses of streptomycin alone

3 For preventing the appearance of resistant strains of tubercle bacilli combinations of two or more of the following drugs are indicated streptomycin, isoniazid, and aminosalicylic acid Mixtures of these anti-infectives are not advised for the control of other bacteria

4 For the treatment of mixed infections or for the disinfection of the intestines prior to abdominal operations, single antibiotics are often as satisfactory as, or superior to, mixtures The intestinal flora may be suppressed preoperatively with mixtures of poorly absorbed antibiotics Combinations of penicillin and streptomycin may be used in peritonitis, if desired However, they are best administered separately, rather than from a mixture containing a fixed ratio, since the latter method may make it difficult to give the optimal dosage of each drug Mixtures of bacitracin and polymyxin B may be applied locally to infections of the skin

5 For treating seriously ill patients before a bacteriological diagnosis is made, proper therapy may occasionally require the concomitant administration of two antibiotics These should be given only after a careful clinical diagnosis has been made and only in doses that would be optimal for each drug if used alone (never in ready-made mixtures). The agents used should be those most likely to be highly effective against the clinically diagnosed infection

In conclusion, the administration of combinations of antibiotics is indicated only in a few highly selected conditions However, they have been advocated and used in other conditions in which they not only do no good but actually may be harmful When combined therapy of antibiotics is indicated, the antibiotics are best given separately, except in the case of mixtures for local application to the skin

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HOW AUTHENTIC IS MEDICINE ON TELEVISION?

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For one thing, the Lassie show has 29 million viewers, including perhaps a hundred thousand physicians, nurses, dentists, and others in the healing arts. But it is not merely to avoid guffaws, comments of ridicule or general discredit of the program by these people that pains are taken to assure technical medical accuracy. Even more important is the growing public service attitude among producers to portray health situations authentically for the vast field of nonmedical viewers.

"We are not dealing with 'small potatoes' audiences here. In both fiction and fact presentation the voice and face of medicine today are emerging more intimately before more people than at any time in the history of the world. Independent radio and television stations in every region of the country, cooperating with local medical societies, are finding vast and eager audiences for medical shows woven in such varied format as music, interview, drama, panel discussion, question and answer, demonstration, and individual reporting. Network-wise, there was an average of only two medical stories a week on television a year ago, playing to less than 10 million viewers. Now industry sources report, there are eight or more medical-line television shows weekly, having a combined national audience of at least 50 million. And judging by public response, the demand has not yet been satisfied.

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During one week not long ago, television listings included a "Medical Horizons" presentation on arthritis, "Dr. Hudson's Secret Journal" in an episode on appendectomy, a "Dr. Christian" script involving a decision on childbirth, a "hi-fi" show exploring deafness, a documentary on cancer research, and five dramas in such diverse settings as hospital administration, diabetes study, pregnancy, drug experimentation and medical use of oxygen. Is it any wonder that producers want to be certain that no gesture, no part of dialogue, no dramatic sequence in a medical scene is unrealistic or unfair?

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American Medical Association headquarters in Chicago was one source for counsel, and the New York medical societies were another. Closer by for Hollywood was the Los Angeles County Medical Association, whose cooperation with producers of "Medic" was presenting medical science accurately and compellingly in story format. Because "Medic" was a network show, the Los Angeles doctor-consultants soon were besieged with television, movie, and radio scripts from Hollywood, New York, Chicago, and other parts of the nation. The county society finally came to the A. M. A. for advice. On Feb. 13, 1956, a 12-man Physicians Advisory Committee on Television, Radio and Motion Pictures met for the first time under auspices of the A. M. A. Board of Trustees and Public Relations Department.

Physicians volunteer their services through two groups, one headed by Dr. Robert W. Gentry in Los Angeles and the other by Co-chairman Gerald D. Dorman in New York (95% of all television, radio, and movie productions originate in these two cities). At first, a few producers looked askance at the Committee, speculating that the A. M. A. Might be trying to dictate some scripts and gag others. One executive for the "Dr. Hudson" television series listened coldly to the Committee's offer to help bring greater authenticity to his programs. Weeks later, testing, he asked a routine medical question. The Committee gave a prompt reply. Today, that weekly drama, climbing to greater heights of viewership, is a gem polished regularly with the help of A. M. A. Committee members. The producer is lavish in his praise of the doctors.

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—"Dr Mike,' a dramatic television series being prepared for fall debut

—"Medical Reporter," a San Francisco radio serial

—A series of filmed television shows on psychiatry, written by prize-winning author Paddy Chavevsky

—At least a half-dozen feature-length movies, such as "Hatful of Rain,' "Three Faces of Eve,' 'The Story of Mankind,' 'Prisoner in Paradise, and "Bellevue Is My Home'

There is no A M A sponsorship in any of these presentations but the A M A does produce a number of films and sound recordings for broadcast on "public service time' Its latest film, "Even for One (showing the "human' side of a doctor's practice) has been televised in 125 cities in three months' time, attracting one million viewers

In addition, hundreds of radio stations across the land use some of their unsponsored time to play authoritative A M A transcriptions on a wide field of health topics These range from diet to heart disease, from antibiotic drugs to accidental poisoning, from sketches of famous physicians to child care and aging

All these radio offerings by the A M A 's Bureau of Health Education are being supplemented by a dramatic new transcription series coming out this month, in which eminent surgeons in 13 different regions of the U S describe procedures on-the-spot as they work in operating rooms

Radio is an equally potent force for medicine outside the U S This is shown by the surprisingly large amount of mail which somehow reaches through the Iron Curtain to Radio Free Europe's Radio Doctor,' the most widely listened to of all programs broadcast from the free world Most of the letter-writers plead for drugs for arthritis, multiple sclerosis, tuberculosis, and urologic diseases

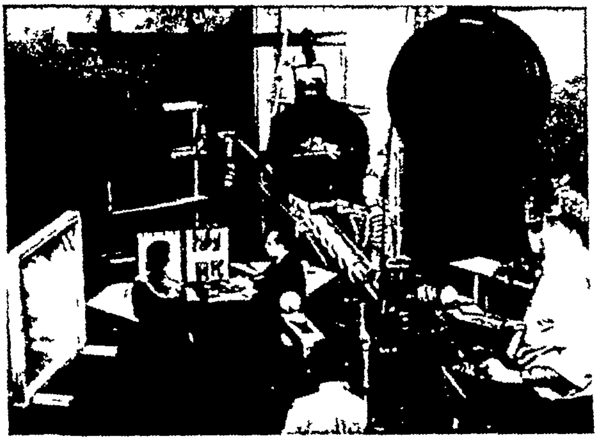
A M A as Pioneer

While the Committee in Los Angeles and New York represents a new approach to greater authenticity, the A M A (sometimes in cooperation with pharmaceutical firms) long has helped tell medicine's story in mass audiovisual communications It has used radio for public information for over a quarter of a century It helped pioneer medical presentation on television more than a decade ago, and on closed-circuit color television in 1949 The A M A 's office of motion pictures and medical television often has been consulted on technical phases of production, both for public view and for showings limited to medical groups

But it is at the local medical society level that authenticity in television achieves its warmest "personal" touch You feel it as members of the Medical Society of the County of New York feature real diagnoses and real treatment for a group of real patients before live television cameras (this also has been done in Seattle and other cities) You sense it as the Winnebago County Medical Society in Rockford, Ill , televises mass visual eye tests for school-age children Doctors of the Medical Society of Milwaukee County let their WTMJ-TV viewers peer through a microscope, watch electrocardiographs in operation, and examine detailed sections of the body through the obliging cooperation of an anatomic mannikin from the Marquette medical school

Audience response to some local medical shows seems boundless, much to the pleasant surprise of physicians and studio officials A few weeks ago in Buffalo, five doctors offered to answer questions from a television audience on dangers of obesity Nearly 18,000 calls flooded the broadcasting station switchboard A similar reaction developed in Seattle earlier this year when a program, 'Call the Doctor,' drew hundreds of questions on the same topic

Four years ago, when WHAS-TV in Louisville, Ky , made the first American telecast of lung cancer surgery, thousands of viewers suddenly became health-conscious Within a few weeks there developed an unprecedented voluntary demand for chest x-rays Blood donations increased People who had been hesitant about reporting for routine physical examinations went to their doctors A recent A M A survey showed that, among 93 county and 17 state medical associations working with local television stations, the most popular type of program format was a panel of physicians with a lay moderator



Camera and mike move in for a close up of local demonstration program televised by WTMJ-TV in coop[illegible]on with Medical Society of Milwaukee County

At the same time there is evidence of more imaginative approaches to television audiences Several societies are laying plans to dramatize medical topics in cooperation with local 'little theater' groups Dr James Rogers Fox of the Minnesota State Medical Association hopes to promote an "Association of Medical Radio-Television' as a vehicle for exchanging data on future programs, problems, and ideas for local medical societies

Grass-roots interest in television as a growing medium for relaying medical authenticity has reached such proportions that the A M A and the National Association of Radio and Television Broadcasters plan to co-sponsor a workshop this fall for representatives of medical societies and allied health groups A committee of broadcasters is being set up to help outline the best use of health shows on unsponsored time

This spirit of cooperation between the medical profession and the television industry—whether it be in Los Angeles or in Onondaga County, New York—is helping arouse today's mammoth public appetite television shows with a medical flavor Just so long the menu includes authenticity with the basic ingredients of action and suspense, the diet will balanced for good health

There seem to be limitless varieties of medical story lines, and for that reason many branches of the profession are represented in the group In New York, Dr Dorman has an industrial health practice, his Committee colleagues are Hospital Administrator Henry Fineberg and Surgery Professor Renato Azzari Co-chairman Gentry in Los Angeles is a chest surgeon Committee members there are Drs Vincent Askey (surgeon, Speaker of the A M A House of Delegates), Dudley Manchester Cobb Jr (general practitioner), Eugene F Hoffman (urologist), Richard O Myers (pathologist), Marcus H Rabwin (surgeon), Charles C Stenley (internist), James F Regan (surgeon), and Edward T Tyler (infertility specialist) For 10 years, in what he calls "a hobby," Dr Tyler has written top-flight material for radio and television shows, including "Medic," NBC spectaculars, and the Groucho Marx show

Advisors, Not Censors

"The primary purpose of this committee is assistance," says Dr Gentry "We are making ourselves available as advisors, not imposing ourselves as censors ' This A M A concept of "help not yelp" is welcomed warmly by producers and network executives Now they, not alone the doctors, are recognizing the hazard of overdramatization in medical-line scripts They, not alone doctors, are spying the pitfalls in such phrases as 'miracle pill" and 'wonder drug ' They, not alone doctors, are becoming leery of some sponsors' wild claims for sedatives and reducing pills

Other lay groups also are hitting the misleading medical commercials Last month the Federal Trade Commission's new radio-television unit filed complaints of false advertising against three national distributors of arthritis and rheumatism medicines At about the same time, the industry's Television Code Review Board decided that the words, 'a dramatization," should be sustained (rather than just flashed) on television screens during commercials which carry statements by actors portrayed as physicians, dentists, or nurses

Whenever the opportunity arises we try to advise portrayal of realistic medical situations," says Dr Gentry "One writer not long ago worked his story around a series of dramatic but truly weird medical symptoms He offered his script and asked us to come up with a disease to fit the symptoms There was none" Among suggestions to television producers who have requested script review are these

—"Doctor should also check shock, pulse, blood pressure, and feel abdomen and reflexes The patient should be complaining of pain in abdomen"

—"A doctor should not be calmed down by a police man"

—"A sedative is usually not administered by hypo It would be better to give a capsule with a glass of water"

—"A patient hanging between life and death would not be left unattended"

At the same time, Committee members realize tha medical fiction need not always conform to the usua practice of medicine—at the expense of certain ele ments of drama For example, after reviewing on script, they noted "Although the committee was of th opinion that 1) it is unlikely that a doctor woul operate on a member of his own family, and 2) th training period necessary for the performance of suc surgery would be greater than shown, it was agree that a certain degree of dramatic license must be per mitted in a program of this nature We are sendin a letter to the producers commending them on an ex cellent job"

Help, Not Hinder

This sort of constructive viewpoint goes a long wa toward removing any "stodgy' label One produce had to be assured that the word "urine" in a script wa perfectly acceptable for public understanding, par ticularly in reference to diabetes Another, seeking t best portray the use of animals in medical researc bubbled with enthusiasm when the Committee sug gested he refer to the true story of how silver nitrat drops in the eyes of kittens helped prove that thou sands of newborn babies need not lose their sight

As producers in the audiovisual arts chart the pub lic's growing demand for medical-line presentation demands on the A M A Committee become greate In recent weeks there have been conferences on gen eral liaison at the request of movie studio officials, o the Alliance of TV Producers, and of the Scree Writers Guild Meanwhile, expert medical counsel i being sought freely and given freely for a whole ne group of motion picture and television shows now i various stages of production These include

Left, a hospital scene from the A M A-produced television film, Even for One *Right* Los Angeles Contingent of the A M A s Advisory Committee listens to medical script problem of commercial television Film Producer Leal Grunke (standing)

—"Dr Mike,' a dramatic television series being prepared for fall debut

—"Medical Reporter," a San Francisco radio serial

—A series of filmed television shows on psychiatry, written by prize-winning author Paddy Chayevsky

—At least a half-dozen feature-length movies, such as "Hatful of Rain," 'Three Faces of Eve,' "The Story of Mankind,' 'Prisoner in Paradise, and "Bellevue Is My Home'

There is no A M A sponsorship in any of these presentations, but the A M A does produce a number of films and sound recordings for broadcast on "public service time' Its latest film, "Even for One' (showing the "human' side of a doctor s practice), has been televised in 125 cities in three months' time, attracting one million viewers

In addition, hundreds of radio stations across the land use some of their unsponsored time to play authoritative A M A transcriptions on a wide field of health topics These range from diet to heart disease, from antibiotic drugs to accidental poisoning, from sketches of famous physicians to child care and aging

All these radio offerings by the A M A 's Bureau of Health Education are being supplemented by a dramatic new transcription series coming out this month, in which eminent surgeons in 13 different regions of the U S describe procedures on-the spot as they work in operating rooms

Radio is an equally potent force for medicine outside the U S This is shown by the surprisingly large amount of mail which somehow reaches through the Iron Curtain to Radio Free Europe's 'Radio Doctor,' the most widely listened to of all programs broadcast from the free world Most of the letter-writers plead for drugs for arthritis, multiple sclerosis, tuberculosis, and urologic diseases

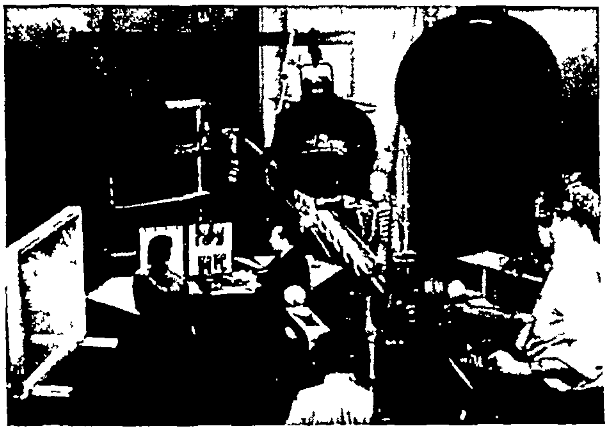
A M A as Pioneer

While the Committee in Los Angeles and New York represents a new approach to greater authenticity, the A M A (sometimes in cooperation with pharmaceutical firms) long has helped tell medicine's story in mass audiovisual communications It has used radio for public information for over a quarter of a century It helped pioneer medical presentation on television more than a decade ago, and on closed-circuit color television in 1949 The A M A 's office of motion pictures and medical television often has been consulted on technical phases of production, both for public view and for showings limited to medical groups

But it is at the local medical society level that authenticity in television achieves its warmest "personal" touch You feel it as members of the Medical Society of the County of New York feature real diagnoses and real treatment for a group of real patients before live television cameras (this also has been done in Seattle and other cities) You sense it as the Winnebago County Medical Society in Rockford, Ill, televises mass visual eye tests for school-age children Doctors of the Medical Society of Milwaukee County let their WTMJ-TV viewers peer through a microscope, watch electrocardiographs in operation, and examine detailed sections of the body through the obliging cooperation of an anatomic mannikin from the Marquette medical school

Audience response to some local medical shows seems boundless, much to the pleasant surprise of physicians and studio officials A few weeks ago in Buffalo, five doctors offered to answer questions from a television audience on dangers of obesity Nearly 18,000 calls flooded the broadcasting station switchboard A similar reaction developed in Seattle earlier this year when a program, Call the Doctor,' drew hundreds of questions on the same topic

Four years ago, when WHAS-TV in Louisville, Ky, made the first American telecast of lung cancer surgery, thousands of viewers suddenly became health-conscious Within a few weeks there developed an unprecedented voluntary demand for chest x-rays Blood donations increased People who had been hesitant about reporting for routine physical examinations went to their doctors A recent A M A survey showed that, among 93 county and 17 state medical associations working with local television stations, the most popular type of program format was a panel of physicians with a lay moderator



Camera and mike move in for a close-up of local demonstration program televised by WTMJ-TV in cooperation with Medical Society of Milwaukee County

At the same time there is evidence of more imaginative approaches to television audiences Several societies are laying plans to dramatize medical topics in cooperation with local "little theater" groups Dr James Rogers Fox of the Minnesota State Medical Association hopes to promote an 'Association of Medical Radio-Television' as a vehicle for exchanging data on future programs, problems, and ideas for local medical societies

Grass-roots interest in television as a growing medium for relaying medical authenticity has reached such proportions that the A M A and the National Association of Radio and Television Broadcasters plan to co-sponsor a workshop this fall for representatives of medical societies and allied health groups A committee of broadcasters is being set up to help outline the best use of health shows on unsponsored time

This spirit of cooperation between the medical profession and the television industry—whether it be in Los Angeles or in Onondaga County, New York—is helping arouse today s mammoth public appetite for television shows with a medical flavor Just so long as the menu includes authenticity with the basic story ingredients of action and suspense, the diet will be balanced for good health

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THE "SUMMER ROUND UP" GROWS UP

GUEST EDITORIAL

Henry F. Helmholz, M.D.

Since the "Summer Round-up" of children started in 1925, the National Congress of Parents and Teachers (P. T. A.) has continually expanded its health interests. When, recently, further expansion was indicated, the National Congress turned again to the medical and allied professions for advice, as it had done in working out plans for the Summer Round-up. On January 21, 1956, 20 organizations and government agencies concerned with child health sent representatives to a conference in Chicago, for discussion of "The Periodic Health Appraisal for Children from Birth Through High School." Special emphasis was placed on ways in which the national P. T. A. and state congresses of parents and teachers might most effectively cooperate in a program of the kind proposed.

Out of this meeting came the following recommendations:

> I. That the National Congress of Parents and Teachers adopt a policy supporting and encouraging a program of continuous health supervision of children from birth through their school experience, rather than only a program of single appraisal on school entrance [Summer Round-up].
>
> II. That the National Congress of Parents and Teachers recommend to its local units a promotional and educational program that will tend to bring children and their parents into effective contact with the health resources of the community.
>
> Wherever possible, these should be the physician and dentist who normally serve that child or family, whether they be working in private practice or in a community health service.

In such a program "the role of the parent-teacher association will be to acquaint parents with the means of effectively utilizing the resources available to meet the health needs of children, beginning at birth and continuing through the school years. The parent-teacher association also should work with the professions and agencies of the community in planning and carrying out such a program."

This program was adopted by the National Congress of Parents and Teachers at its annual meeting in May, 1956. Once more the National Congress, which works for the best interests of children attending public schools, has reached a milestone in its long history of cooperation with the health service professions. Again it has increased the opportunity for physicians to work closely with children and their parents, as these parents become better informed about the values derived from child health supervision on a continuing basis at the hands of the family medical advisor.

The American Medical Association and the National Congress of Parents and Teachers have enjoyed a third of a century of cooperation in protection of child health through the Summer Round-up of children. This program, as conceived in 1925, was a means of assuring the health of children who were entering school for the first time. Thus, they might be enabled to benefit to the maximum from their education. Introduction of the round-up, coming when there was renewed interest in child health after World War I, did a great deal to bring apparently well children under the scrutiny of physicians, many of whom were just beginning fully to appreciate that vaccination against smallpox was not the only preventive measure that could be applied in medical practice. At this time the National Congress and the American Medical Association were mutually helpful. Throughout its many thousands of local units, the National Congress promoted the desirability of preventive medical care and examinations by physicians. The American Medical Association, on its part, encouraged physicians to join in the program and provided the National Congress with several-hundred-thousand examination forms for physicians to use. The program became so popular that most schools still require physical examinations of all entering pupils, and the resulting interest in child health has strengthened the entire school health program.

For nearly half a century, moreover, the American Medical Association has promoted sound school health programs through the joint committee that it formed with the National Education Association on health problems in education. For the past decade the Bureau of Health Education of the American Medical Association has had on its staff physicians and educators promoting interprofessional cooperation in solving health problems of school-age children. And now comes another opportunity to strengthen the total child health program by having the millions of members of the local P. T. A. supporting the concept of continuous health supervision of children throughout their entire developmental period. This unusual opportunity to counsel with children and their parents will be welcomed by physicians everywhere.

LAOS MEDICAL MISSION

About eight months ago, young Dr. Thomas A. Dooley returned to Laos in the Far East, to continue the great work he had undertaken while a Navy medical officer caring for and helping refugees who were trying "to escape, to crack through this [iron and bamboo] curtain and achieve or regain their liberty."

While a Navy officer, he had improvised a medical camp at Haiphong in North Viet-Nam during this flight for freedom in that region. In an editorial in THE JOURNAL, September 1, 1956, he said, "I saw

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Health Chairman, National Congress of Parents and Teachers.

600,000 who fled The memory returns like a searing flame Their anguish Then panic Their tears Their haggard women The death No one who has ever witnessed such a heartbreaking exodus will forget it for the rest of his life'

Dr Dooley wrote also a widely read book, 'Deliver Us from Evil,' in which this experience was described, and the royalties from this book are being used to help finance his current work in Laos, a mission that has the approval of the State Department, the International Cooperation Administration, and the Laotian government Elsewhere in this issue of THE JOURNAL (page 90) is a letter from Dr Dooley, describing what he and his three American assistants have been accomplishing since his return to the Far East, in a region which can be reached by taking a 'PAA plane, then fly 10,000 miles to Bangkok, Thailand, transfer and fly 400 miles north to Vientiane, and then drive eight hours through the jungle to us' Dr Dooley has spent nearly three years in Asia (with a five-month break) He expects, when he has done his part in this great mission to come home and go into private practice He feels that physicians have a special calling to help underdeveloped communities of the world which are threatened by communism Physicians also are in a position to implement our foreign policy of aid to the multitudes of mankind behind the iron curtain to whom liberty and freedom are a pounding, ever-present dream Dr Dooley's experience and high purpose may inspire other young men to go to parts of threatened Asia to take part in this great medical mission and to be salesmen for democracy

MEDICINE'S FIFTY MILLION "FANS"

Any good script writer can create a yarn with suspense and action But in a medical story—be it drama or documentary—authenticity must be searched out Another Medicine at Work article (this issue, page 49) tells how the critical tastes of 50 million weekly viewers of televised medical scenes are reflected in producers who demand utmost medical accuracy Similar high standards of genuineness are being set for movie and radio presentations

A new committee of the American Medical Association is providing authoritative answers sought by these producers for their scripts One result of this voluntary liaison between the medical profession and the entertainment industry is a sharpened awareness of health among television, movie, and radio audiences—and a clearer public understanding of medicine's public service role This, in turn, is whetting the public appetite for more programs about doctors and their work

Herein lies both a phenomenon and a challenge Facing the collective television screen is an unprecedented picture of millions of Americans gazing upon medicine almost daily in a face-to-face, informal, and understandable presentation, on screen are the words and actions which might either highlight or dim the true portrayal of physicians as neighbors, scientists, and benefactors It is to the great credit of producers and studio executives that the profession is seen fully and faithfully in its natural and human light—neither glorified nor degraded

THE UNPALATABILITY OF THERAPEUTIC DIETS

A major problem of diet therapy is unpalatability of the diet, with consequent lack of patient cooperation Diets can be made more palatable by providing for the use of a wide variety of acceptable seasonings The report of Elvehjem and Burns [1] to the Council on Foods and Nutrition of the American Medical Association drew attention to the role spices could play in this regard The report consisted of a study of the sodium content of commercial spices and suggested their use in the preparation of sodium-restricted diets Prior to Elvehjem and Burns' report the sodium content of the common spices was unknown, hence they could not be used with assurance that they made no significant addition to the sodium content of the foods they seasoned Following closely on this report came the recommendation of a committee of the American Heart Association [2] of a long list of acceptable seasonings for use in both sodium-restricted and calorie-restricted diets for cardiac patients The list included, in addition to spices and herbs, such other flavorings as lemon juice, vinegar, vanilla, saccharin, cyclamate (Sucaryl), onion, and garlic A longer list is recorded in a report of a committee of the Food and Nutrition Board, National Research Council [3]

More recently, Gray and co-workers [4] reported a study on the effect of spice ingestion on the healing time of peptic ulcer Fifty patients with active peptic ulcer, with craters demonstrable by x-ray, were maintained on a routine ulcer regimen, including a progressive ulcer diet interval feedings, antispasmodics, and antacids They were given, in addition, a capsule containing a spice, the nature of which was unknown to the patient, three times daily, with meals The dose of spice was determined by its usage in highly spiced recipes Four slices of cinnamon toast, for example, requires about 0 9 Gm of cinnamon The patients were thus given 0 9 Gm of this spice three times daily This test was reasonably severe, because the amount of spice used was the amount recommended in rather highly spiced recipes and it was given in capsules that dissolved in the stomach, releasing the dry spice directly

The spices tested included cinnamon, nutmeg, allspice thyme, sage, paprika, caraway seed, chili pepper, cloves, black pepper, and mustard seed Symptoms developed in only five patients in this group during the administration of spices two with administration of black pepper, one with chili pepper, one with nutmeg, and one with ground mustard seed

These studies suggest that some of the milder spices may be used in moderation to improve the flavor and acceptability of therapeutic diets, even in patients with peptic ulcer

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1 Elvehjem, C A and Burns, C H Sodium Content of Commercial Spices, J A M A **148**:1033 (March 22) 1952

2 Harvard School of Public Health Department of Nutrition Food for Your Heart A Manual for Patient and Physician New York, American Heart Association, 1952

3 Sodium-Restricted Diets Rationale, Complications, and Practical Aspects of their Use, a report of the Food and Nutrition Board Publication 325, National Academy of Science–National Research Council, July, 1954

4 Schneider, M A, DeLuca, V, and Gray, S J Effect of Spice Ingestion upon Stomach, Am J Gastroenterology **26** 722-732 (Dec) 1956

ORGANIZATION SECTION

REPORTS OF OFFICERS

The following reports will be presented to the House of Delegates of the American Medical Association at its session to be held in New York in June.

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association

The following report of the Board of Trustees is respectfully submitted.

Financial Statement

The official 1956 reports of the Treasurer and of the Association's auditors appear as a part of this report of the Board of Trustees.

American Medical Association dues payments from approximately 136,000 members together with subscription receipts from THE JOURNAL, specialty journals and *Today's Health* amounted to $5,192,650. This figure exceeded 1955 receipts from the same sources by $268,344.

Advertising revenue from all publications amounted to $4,943,003 compared with $4,184,277 received in 1955, or a gain of $758,726. THE JOURNAL and specialty journals accounted for $756,712.

Investments of the Association earned $293,112 in 1956 compared with $239,298 in 1955. The approximate over-all annual yield was 2.96%. Other income amounted to $174,070.

Printing and publishing costs of Association periodicals, books and pamphlets amounted to $5,222,444, an increase over 1955 of $262,784, due principally to an increase in production of all periodicals.

The expenditures of the Councils, Bureaus, and related activities listed in schedule 1 of the Auditor's Report amounted to $3,727,966, an increase of $85,846 over 1955.

Other expenses amounting to $355,972, include cash discounts, net maintenance of idle plant, unallocated expenses, legal expense, and net cost of conducting the Chicago and Seattle meetings.

Net income from the 19th Edition American Medical Directory sales and the Directory Report Service amounted to $425,683. Other nonrecurring income amounted to $84,811.

The Association's contribution for 1956 to the American Medical Education Foundation was $125,000. Total Association contributions to the Foundation amount to $2,325,000.

The net amount transferred to Capital for 1956 was $71,947 after providing for additional reserves of $1,610,000.

Marketable securities carried at cost are valued at $8,459,351 exclusive of securities held in the American Medical Association Research Fund of $1,491,060. The total amounting to $9,950,411 at Dec. 31, 1956, compares with $8,010,371 at Dec. 31, 1955.

A general classification of securities will be found in the balance sheet contained in the Auditor's Report.

Report on Matters Referred by House of Delegates

Narcotic Addiction.—In June 1954 Dr. Andrew A. Eggston, New York, submitted a resolution which proposed that the American Medical Association favor the legalization of distribution of narcotics to addicts under the following safeguards: (1) establishment of narcotic clinics in cities where needed under the aegis of the Federal Bureau of Narcotics, (2) registration and fingerprinting of narcotic addicts, (3) keeping of accurate records, (4) administering optimal doses at regular intervals to addicts at cost or free, (5) prevention of self-administration, (6) attempt cures through voluntary hospitalization if possible, and (7) avoidance of forceful confinement.

This resolution was referred to the Reference Committee on Hygiene, Public Health and Industrial Health. The Reference Committee because of the complexity of the problems involved thought the matter should be referred to the Board of Trustees for further reference to an appropriate group of experts for detailed consideration, the results of such studies to be reported at a subsequent meeting of the House of Delegates.

The Board of Trustees referred the resolution to the Council on Pharmacy and Chemistry for detailed consideration.

The Board agreed with the report of the Council that the problem was being handled too exclusively as a police problem without sufficient emphasis on its most important medical aspects and referred the problem to the Council on Mental Health for thorough exploration.

In April, 1955, the Council established a Committee on Narcotic Addiction. This committee has made a thorough review of all material available concerning the operation of clinics which dispensed narcotics during the period 1919-1923, has studied proposals for legal dispensing of narcotics to addicts, has conferred with persons with expert knowledge of the medical, social and legal aspects of addiction, and has studied testimony and statements of persons holding various views on the question. It has also reviewed the voluminous material contained in the reports of the Subcommittee on the Improvement of the Federal Criminal Code, U. S. Senate and reports of the Subcommittee on Narcotics of the House of Representatives.

The following recommendations of the Council on Mental Health were submitted to the Board of Trustees and are quoted below for action by the House of Delegates.

(1) Improvement of the care of addicts.—It is recommended that the American Medical Association continue to study and to support reasonable proposals designed to improve the treatment and prevention of drug addiction. Such measures might include: (*a*) Development of institutional care programs in cities and states with significant problems. (*b*) Study of various means to obtain institutional care in states with small addiction loads. One such proposal is for several states to set up an institution which would be operated jointly. (*c*) Development of programs for intensive postinstitutional treatment of addicts. Such measures would include supplying of various social services, vocational rehabilitation, and, where possible, psychotherapy to addicts for adequate periods following discharge from institutions. In many instances, available facilities in other programs might be utilized. States with serious problems should develop special programs for addiction. (*d*) Development of methods for commitment of addicts to institutions by civil action rather than through actions in the criminal courts. In this connection the Council further recommends that where civil commitment procedures can be used, criminal sentences for addicts who are guilty only of illegally possessing and obtaining opiates, marihuana and cocaine should be abolished. Criminal sentences for illegal sale of narcotics should be retained but persons who are addicts and who are sentenced for such offenses should have the same opportunity for probation and parole as is afforded offenders against other laws. Mandatory minimum sentences for addict violators would interfere with the possible treatment and rehabilitation of addicts and therefore should be abolished. (*e*) The Council strongly recommends that the policy of voluntary admissions for the treatment of addiction should be continued, extended and encouraged. (*f*) Continued support and expansion of mental health programs. Because of the importance of psychiatric factors in addiction such programs should eventually have an effect in reducing addiction even though not specifically aimed at that problem.

(2) It is recommended that the American Medical Association support proposals for increased research on the problems of addiction. One of the current difficulties in formulating adequate programs is lack of knowledge which can be gained only through research. Support should be given not only to basic laboratory investigations but also to continuation of sociological studies and to an intensive program of clinical research based on adequate facilities for following addicts after institutional discharge. Such research might yield results that would be valuable in areas other than addiction.

(3) Clinic plans—In view of all of the available evidence at the present time it does not seem feasible to recommend the establishment of clinics for the supply of drugs to addicts This is true for the Eggston resolution and the plan of the New York Academy of Medicine even though there are many aspects of these plans that could be looked upon with favor This opinion should be subject to frequent review in accordance with new scientific knowledge that may become available

(4) It is recommended that the American Medical Association continue to study the narcotic laws with the view of further clarification of the rights and duties of physicians and allied professional persons in the handling of addicts The phrases in the current law "in the course of professional practice only" and "prescription" remain vague and confusing, despite Supreme Court decisions Regulations on dispensing drugs to addicts should be eased so that the patients can have a reasonable time to arrange their affairs prior to entering a hospital for treatment The 1924 resolution of the House of Delegates should be revised Consideration should be given to broadening the resolution to include a plan endorsing regulations somewhat similar to those currently in force in England

Statement of A M A Policies—In November, 1956, a resolution on annotation of American Medical Association policies was introduced into the House of Delegates by Dr Robert N Larimer on behalf of the Iowa State Medical Society and referred to the Reference Committee on Miscellaneous Business

The House of Delegates adopted a revised resolution to the effect that the Board of Trustees continue to investigate the practicability of developing a statement of policies of the A M A and to arrange for the periodic publication of revised versions of that statement the frequency of revisions to be determined by the Board

The Board of Trustees would call attention to the fact that the words "current policies" mean policies which date back to 1847, since the House of Delegates has never adopted a policy of automatically rescinding all actions prior to an arbitrary date

An abstract of all policies of the House of Delegates is currently being prepared by a professionally trained librarian in the medical sciences This volume which should be ready for distribution at the end of the current year, will cover all House actions from 1847 to the present time It will be an encyclopedia with abstracts alphabetically arranged and supplemented by a detailed index and, to assure continuity, supplements will be published at five-year intervals with a cumulative index

The Board of Trustees feels that annual revision of such a volume is not feasible unless the House adopts a policy of periodically rescinding all of its previous actions

Veterans Affairs—The Board of Trustees considered resolution 12 on veterans affairs and 23 on Veterans Administration hospitals adopted by the House of Delegates at the Seattle meeting requesting the Secretary of the Association to obtain from each state testimony or record of each known case that violates VA Regulation 6047-D 1

These resolutions were transmitted to the constituent medical associations through the medium of the Secretary's Letter (Jan 11, 1957) The Council on Medical Service has been given the responsibility of following through on the replies received from the states or others who know of violations of this regulation

Liaison Between Organized Medicine and Professional and Lay Groups—Resolution 20 which was introduced by the Michigan delegation into the House of Delegates at the Seattle meeting recommended the establishment of an A M A Office of Liaison, reporting directly to the Secretary and General Manager, whose duty it would be (1) to seek out all possible avenues of communication and coordination of effort with other recognized groups professional and lay, which have interests in common with the medical profession, (2) to determine those methods whereby, through administrative contact, common professional aims and purposes can be advanced to mutual advantage and (3) to aid the development of such liaison on a continuing basis subject to the approval of the Board

The Board of Trustees calls to the attention of the House of Delegates the fact that the Committee on Relationships Between Medicine and Allied Health Agencies was established some time ago and is active in this area In addition, the officers councils, committees and departments within the American Medical Association are constantly developing channels of communication and promoting coordinated effort in carrying out the policies of the Association The Board feels that a specific liaison office to supplement these many liaison activities is not necessary

Hospital Design and Construction—In accordance with the action taken by the House of Delegates in Seattle to the effect that the A M A join with the American Hospital Association and the American Institute of Architects in their proposed study of hospital design and construction the Board of Trustees appointed Dr William A Hyland of Michigan as the Association's representative in any discussions which may take place relative to this subject

Public Law 880—Resolution 25 on the administration of Public Law 880, authorizing the provision of cash benefits for disabled persons, was considered by the Board of Trustees

About six months ago a Committee on Medical Rating of Physical Impairment was established by the Board of Trustees Believing that this resolution falls within its purview the Board referred resolution 25 to that committee for study and recommendations As soon as a report is received it will be transmitted to the House of Delegates

Rehabilitation Consultation Service—In December, 1955 a resolution, approved in principle by the House of Delegates recommended that an integrated consultation service to state societies be established which would outline a policy of procedure for the guidance of local professional groups in dealing with the total program of rehabilitation

The Board of Trustees referred the resolution to its Committee on Rehabilitation, established in 1956 That committee at its meeting on Dec 14 1956 reported to the Board that it has taken cognizance of the resolution and will implement it insofar as it is practicable and possible

Referral of Resolutions—In accordance with action taken by the House of Delegates in Seattle, the Board referred the following resolutions to the council as indicated

Resolution 8—Preretirement financing of health insurance for retired persons—Council on Medical Service

Resolution 22—Fluoridation of public water supplies—Council on Drugs and Council on Foods and Nutrition

Resolution 26—Medical care plans—Council on Medical Service

Supplementary Report D on radioactive isotopes—Council on Medical Physics

Annual and Clinical Meetings

The following places and dates have been approved by the House of Delegates and the Board of Trustees for the Annual and Clinical Meetings of the Association

Annual Meetings 1958—San Francisco June 23-27, 1959—Atlantic City June 8-12, 1960—Chicago, June 6-10

Clinical Meetings 1957—Philadelphia Dec 3 6, 1958—Minneapolis Dec 2-5, 1959—Dallas

Supplementary Reports

Supplementary reports on certain subjects that have been referred to the Board of Trustees by the House of Delegates and on other matters of interest to the House will be presented at the first meeting in New York

Respectfully submitted

Gunnar Gundersen, Chairman
F J L Blasingame, Vice chairman
Edwin S Hamilton, Secretary
Julian P Price
James R Reuling
James R McVay
Leonard W Larson
Thomas P Murdock[*]
Hugh H Hussey Jr
Dwight H Murray
David B Allman
E Vincent Askey
Louis M Orr
F S Crockett
J J Moore
ex officio

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[*] Deceased

AUDITORS REPORT

March 15 1957

The Board of Trustees
American Medical Association

We have examined the statement of assets and liabilities of the American Medical Association as of Dec 31 1956, and the related statement of income and capital for the year then ended Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances

In our opinion the accompanying statement of assets and liabilities and statement of income and capital present fairly the financial position of the American Medical Association at Dec 31 1956 and the results of its operations for the year then ended in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year

PEAT MARWICK MITCHELL & CO

BALANCE SHEET—DEC 31, 1956

Assets

Cash			$ 108 217
Accounts receivable			
Advertising		$ 413 796	
Directory report service		44 026	
Other		85 208	543 030
Interest accrued on investments			41 563
Inventories of material and supplies at cost			374 148
Expenditures on publications in process			183 749
Prepaid expenses deposits and advances			
Deposits and advances		99 379	
Commissions applicable to unexpired subscriptions to publications		477 788	
Insurance and other prepaid expenses		38 935	616 102
Marketable securities at cost (value based on market quotations [illegible])			
United States Government securities		6 557 692	
Public utility and industrial bonds		522 728	
Common stocks		1 378 931	8 459 351
Representing investment of			
General fund	$ 3 284 351		
Depreciation reserve fund	1 365 000		
Building replacement reserve fund	1 860 000		
Association reserve fund	350 000		
Retirement reserve fund	400 000		
Building improvement and modernization reserve fund	1 000 000		
Equipment modernization reserve fund	200 000		
	8 459 351		
American Medical Association Research Fund			
United States Government securities at cost (value based on market quotations $1 451 [illegible])		1 491 060	
Cash		3 040	1 494 100
Property plant and equipment at cost less depreciation			
Land		453 774	
Buildings	2 195 737		
Office equipment and machinery	626 947		
	2 822 684		
Less accumulated allowance for depreciation	1 360 370	1 462 314	
			1 916 088
			$13 736 347

Liabilities

Accounts payable and accrued expenses		
Accounts payable		$ 398 247
Accrued payroll		20 446
Accrued taxes		86 433
Employees withheld taxes		44 464
		549 590
Provision for completion costs of cumulative index volumes to be issued less amount recoverable by subscription $174 095		190 778
Deferred credits		
Unexpired subscriptions to publications	$ 1 512 072	
Income from 20th edition directory report service less accumulated costs applicable to directory	113 833	
Other including 1957 dues of $5 200 received in advance	24 865	1 650 770
American Medical Association Research Fund reserve		1 494 100
Other reserves		
Association	350 000	
Retirement	400 000	
Building improvement and modernization	1 000 000	
Equipment modernization	200 000	
Building replacement	1 860 000	3 810 000
Capital (Exhibit B)		6 041 109
		$13 736 347

STATEMENT OF INCOME AND CAPITAL

YEAR ENDED DEC 31 1956

Income		
Membership dues and subscriptions to periodical publications		$ 5 192 650
Advertising		4 943 003
Income from investments		293 112
Other income		174 070
		10 602 835
Costs and expenses		
Printing and publication costs of periodicals books and pamphlets	$ 5 222 444	
Councils bureaus and related activities (Schedule 1)	3 727 966	
Other expenses (including annual and interim meetings net $45 225)	355 972	9 306 382
		1 296 453
Special income credits and charges		
Income from 19th edition directory report service and copy sales less costs applicable thereto (note 1)	425 683	
Excess of credits over charges in connection with the closing of the printing department (note 2)	84 811	
	510 494	
Less contribution to American Medical Education Foundation	125 000	385 494
Income in excess of costs and expenses		1 681 947
Deduct appropriations net		
Building replacement reserve	1 860 000	
Retirement reserve	250 000	
	2 110 000	
Decrease in equipment modernization reserve	500 000	1 610 000
Net amount transferred to capital		71 947
Capital at Dec 31 1955		5 969 162
Capital at Dec 31 1956		$ 6 041 109

Notes

(1) The 19th edition of the American Medical Directory was published during 1956

(2) During 1956 the Association entered into contracts with outside parties for the printing of its periodical publications

COUNCILS BUREAUS, AND RELATED ACTIVITIES

FOR YEAR ENDED DEC 31 1956

Secretary s office	$ 96 430
Association activities	325 948
Association trustees	14 616
Membership records	201 608
Law department	110 729
Biographical records	155 020
American Medical Education Foundation	118 833
Department of Public Relations	399 519
Washington office of A M A	226 817
Chemical laboratory	88 493
Council on Medical Education and Hospitals	376 484
Council on Medical Service	206 226
Council on Pharmacy and Chemistry	99 401
Council on Physical Medicine and Rehabilitation	61 265
Council on Food and Nutrition	55 536
Council on Industrial Health	75 742
Council on National Defense	41 482
Council on Rural Health	67 803
Council on Constitution and Bylaws	3 148
Council on Therapy and Research	64 099
Judicial Council	13 010
A M A Library	80 829
Bureau of Exhibits	109,243
Bureau of Health Education	296 446
Bureau of Investigation	47 957
Bureau of Medical Economic Research	172 764
Committee on Cosmetics	25 654
Committee on Mental Health	36 544
Committee on Research	64 679
Committee on Legislation	20 725
Committee on Medicolegal Problems	8 992
Machine records	61 980
	$3 727 966

TREASURER'S REPORT

INVESTMENT ACCOUNT

REPORT OF THE TREASURER OF THE AMERICAN MEDICAL ASSOCIATION FOR THE YEAR ENDED DEC 31 1956

Investments at beginning of year (at cost)		$ 6 516 592 98	
Bonds purchased	$ 9 131 100 71		
Common stocks purchased	493 930 79	9 625 031 50	
		$16 141 624 48	
Less			
Bonds called matured or sold	$ 7 242 153 50		
Common stocks sold	440 119 90	$ 7 682 273 40	
Investments at end of year (at cost)			$ 8 459 351 08
Cash in bank at beginning of year		$ 38 634 39	
Interest and dividends received	$ 310 229 97		
Less interest prepaid on current year s bond purchases	16 689 19	293 540 78	
		332 175 17	
Transferred to general fund		245 000 00	
Cash in bank at end of year			87 175 17
Cash in bank and investments at end of year			$ 8,546 526 25

RESEARCH FUND

Investments at beginning of year (at cost)		$ 1 493 778 76	
Bonds matured and purchased			
U S Treasury Bonds (matured) Series C 2½% maturity 1/1/56	$100 000 00		
U S Treasury Bonds (purchased) Series K 2¾% due 8/15/63	97 281 25	2 718 75	
		$ 1 491 060 01	
Cash in bank at beginning and end of year		3 039 99	
Cash in bank and investments at end of year			$ 1 494 100 00
Interest received on investments and transferred to general fund to apply on research expenditures	$36 493 75		

DAVIS MEMORIAL FUND

Funds on deposit at Jan 1 1956	$ 9 053 45	
Interest earned on bank balance in 1956	159 11	
Funds on deposit at Dec 31 1956		$ 9 212 56

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association

The following report of the Council on Medical Education and Hospitals is respectfully submitted

Recommendation for Adoption of the Document Functions and Structure of a Modern Medical School to Replace the Essentials of an Acceptable Medical School

Following a year of careful study the Council on Medical Education and Hospitals in collaboration with the Association of American Medical Colleges has completely revised the Essentials of an Acceptable Medical School initially approved by the House of Delegates in 1910 and most recently revised in 1951 The new document represents the current general philosophy and concepts of these two organizations and has been developed as a basic guide It has been endorsed by the Executive Council of the Association of American Medical Colleges and by the Liaison Committee on Medical Education as well as by the Council on Medical Education and Hospitals The Council has voted adoption of the document entitled Functions and Structure of a Modern Medical School to replace the present Essentials of an Acceptable Medical School, and authorized its presentation to the House of Delegates with the recommendation that it be given official endorsement (See Appendix A)

Recommendation for Approval of Publication of Guides and Basic Principles of Postgraduate Medical Education'

During the past year the Ad Hoc Advisory Committee on Postgraduate Medical Education met on several occasions to consider recommendations for the future functions of the Council in this field The Committee assumed as one of its major responsibilities the task of preparing a statement of the Objectives and Basic Principles of Postgraduate Medical Education Programs as a guide for the information of individuals and organizations conducting or planning to conduct, activities in this field Following detailed study and numerous revisions, this statement was submitted to the Council on Medical Education and Hospitals for consideration The Council has voted to endorse the statement on Objectives and Basic Principles of Postgraduate Medical Education and refers it to the House of Delegates for consideration with the recommendation for its approval and subsequent publication (Appendix B)

Organization of Committee to Study Best Background Preparation for General Practice

At its meeting on Dec 14, 1956, the Executive Committee of the Board of Trustees voted that the Council on Medical Education and Hospitals should address itself to instructions 3 and 4 of the report of the Committee on Medical Practice made to the House of Delegates in Seattle (November, 1956) Therefore a committee with representation from the Council on Medical Education and Hospitals the Association of American Medical Colleges and the American Academy of General Practice has been established to proceed to objectively analyze and make recommendations as to the best background preparations today for general practice Representatives of the specialty areas will be added to the committee during the course of its deliberations

The initial meeting of this committee was held in January, at which time it was agreed to consider the following questions 1 What is general practice? 2 Is what is defined as general practice of lasting value to the health care of the United States public? 3 What preparation is needed for this type of practice? 4 How can this preparation best be offered?

The committee adopted a basic working definition of general practice and appointed three subcommittees to carefully consider and report on the following facets of the problem (*a*) prepare a descriptive clarification of the working definition of general practice (*b*) prepare a statement developing the thesis as to whether the kind of physician outlined in the working definition is of lasting value to the health care of the United States public, and (*c*) prepare a report on suggestions as to the preparation needed as background for general practice in keeping with the implications of the working definition

The reports of the studies of this committee and its subcommittees together with its recommendations will be submitted in due course

Inhalation Therapy

In June 1956, the House of Delegates approved in principle, the establishment of educational programs for inhalation therapy technicians and requested the Council to study the development of criteria for such training The advice of several national professional organizations has been sought Recently appointed committees on inhalation therapy of the American Society of Anesthesiologists, Inc , and the American College of Chest Physicians plan to meet jointly in June 1957 Pending the completion of these studies the Council deferred action in view of the need for further definition and study of inhalation therapy and encourages the integration and coordination of such specialized training with existing closely related education programs

The Straight Internship

In view of the resolutions submitted at the June 1956 Annual Session of the House of Delegates in regard to rotating vs straight internship the Council is making further studies in this field Although a definitive recommendation is not being submitted at this time, the Council believes that the House of Delegates should be apprised of the studies under way and should have an opportunity to evaluate the opinions of responsible hospital administrators and members of the profession as to the pros and cons of straight and rotating internship as well as their attitudes in regard to any inflexible ruling concerning the elimination of either type (Appendix C)

Suggested Change in Name of the Council to Council on Medical Education

With the establishment of the Joint Commission on Accreditation of Hospitals on Dec 15, 1951, the field of accrediting hospitals was completely taken over by this body During its first five years of activity, members of the Field Staff of the Council on Medical Education and Hospitals functioned in the dual capacity of evaluation of hospitals for accreditation by the Joint Commission and in evaluation of graduate education (internship and residencies) for the Council The report of the Stover Committee to the House of Delegates in June, 1956 recommended that the Commission should employ its own surveyors, since it is not concerned with internship and residency approval and that the American Medical Association continue to survey such graduate medical education programs through the Council on Medical Education and Hospitals This recommendation was adopted by the House of Delegates and on Jan 1, 1957, the Council reduced its Field Staff accordingly as it discontinued evaluation of hospitals for accreditation by the Joint Commission

During the June, 1954 meeting in San Francisco the Board of Trustees submitted a statement concerned with the discontinuation of hospital registration by the Council on Medical Education and Hospitals which was approved by the House of Delegates The Council on Medical Education and Hospitals compiled its last census on Hospital Service in the United States in 1954 and hospital registration has subsequently been taken over by the American Hospital Association At the time the Council discontinued compilation of annual hospital registration information its Essentials of a Registered Hospital were declared no longer in effect

The Council on Medical Education and Hospitals therefore has no function relative to accreditation or registration of hospitals as such It is however vitally concerned with the internship program and is the sole agency responsible for its evaluation as an educational and training experience It is also vitally concerned with residency education and training which is currently evaluated through residency review and conference committees These committees represent conjoint efforts on the part of the Council the specialty boards, and/or other organizations concerned with graduate education and training The Council is also actively engaged in the long-range study of postgraduate medical education and the role of medical schools, hospitals medical societies and other agencies in such activities

Since the interests and activities of the Council are primarily focused on evaluation and approval of undergraduate, graduate, and postgraduate medical education, and since it plays no direct role in hospital accreditation or registration per se, the name Council on Medical Education and Hospitals' is a misnomer and should be changed to the Council on Medical Education in conformance to its true functions The Council recommends to the House of Delegates that the words and Hospitals' be deleted and that its name be changed to Council on Medical Education

APPENDIX A

FUNCTIONS AND STRUCTURE OF A MODERN MEDICAL SCHOOL

I INTRODUCTION

This statement has been prepared in collaboration with the Association of American Medical Colleges and represents the general concepts of that organization as well as the Council on Medical Education and Hospitals of the American Medical Association It is intended that this material be used as a guide with the hope that it may assist in attaining medical education of ever higher standards Experience indicates that these are best nurtured in an environment in which there is not excessive concern with standardization The concepts expressed here will serve as general but not specific criteria in the medical school accreditation program However it is urged that this document not be interpreted as an obstacle to soundly conceived experimentation in medical education

Published originally as Essentials of an Acceptable Medical School, and approved by the House of Delegates of the American Medical Association June 1910 and revised April, 1913, March and October, 1927 June 1933, June, 1934, August, 1936 June 1938 December, 1945, and December, 1951

II THE RESPONSIBILITIES AND OBJECTIVES OF A MEDICAL SCHOOL

As an institution of higher education a medical school has three inherent responsibilities which are so closely related as to be inseparable

1 *A medical school should provide for its undergraduate students the opportunity to acquire a sound, basic education in medicine and should foster the development of lifelong habits of scholarship*

2 *A medical school should contribute to the advancement of knowledge through research*

3 *A medical school should contribute to the development of teachers, investigators and practitioners through programs of graduate education including residency training*

By virtue of its university orientation or as a result of the clinical facilities and personnel available, a medical school should assume additional responsibilities such as those listed below to the degree that its resources permit without weakening its basic program

1 Leadership in the development of adequate opportunities for the continuing education of practicing physicians

2 Professional service to patients primarily to fulfill its educational and research obligations

3 Participation in the educational programs of other professions in the health field such as dentistry, nursing, and pharmacy, as well as in selected areas of the general university program

4 Training of technical personnel in paramedical fields

A medical school should develop a clear definition of its total objectives, appropriate to the needs of the community it is designed to serve and the resources at its disposal When objectives are clearly defined, they should be made familiar to faculty and students alike, so that efforts of all will be directed toward their achievement

A statement of The Objectives of Undergraduate Medical Education has been prepared by the Association of American Medical Colleges It is believed that this can well serve as the basis for a definition of this portion of the over-all objectives of a medical school and is reproduced in part below The full statement can be found in the *Journal of Medical Education* (28 57-59 [March] 1953)

Undergraduate medical education must provide a solid foundation for the future physician s development It should not aim at presenting the complete detailed, systematic body of knowledge concerning each and every medical and related discipline Rather, it must provide the setting in which the student can learn fundamental principles applicable to the whole body of medical knowledge establish habits of reasoned and critical judgment of evidence and experience, and develop an ability to use these principles and judgments wisely in solving problems of health and disease

Undergraduate medical education cannot achieve these aims if the student is relegated to a passive role It must provide incentive for active learning on the part of the student This can best be done by giving him definite responsibility in real, day-to day problems of health and disease This responsibility must, of course, be carefully graded to the student s ability and experience and must be exercised under careful guidance by the faculty

Given incentive to learn and guidance toward the grasp of principles, with the problems of health and disease as a frame of reference the student will build the necessary foundation for his career in medicine, be it practice (general or limited) teaching, research or administration

'In working toward this fundamental objective undergraduate medical schools must strive to help the student to acquire basic professional knowledge, establish essential habits, attain clinical and social skills necessary to the best utilization of that knowledge, and develop those basic intellectual attitudes, and ethical or moral principles which are essential if he is to gain and maintain the confidence and trust of those whom he treats the respect of those with whom he works and the support of the community in which he lives

These aims are obviously not distinctly separable, but are mutually interdependent All together they summarize the desirable characteristics of the responsible professional person medical education is attempting to produce

III ORGANIZATION AND ADMINISTRATION

A *Governing Body*—A medical school should be incorporated as a nonprofit institution, if possible as a part of a university, since a university can so well provide the milieu and support required by a modern medical school

If not a component of a university, a medical school should have a board of trustees composed like that of a university of public spirited men or women having no financial interest in the operation of the school or its associated hospitals The trustees should serve for fairly long and overlapping terms

Officers and faculty of the school should be appointed by the board of trustees In keeping with generally accepted principles of administration, it is usually not desirable for a member of the board of trustees to serve simultaneously as an administrator or a member of the faculty of the medical school

The manner in which the medical school is expected to conduct its affairs, including the responsibilities and privileges of administrative officers, faculty, and students should be clearly indicated in by-laws approved for the medical school itself or adequately presented in the by-laws of the parent university

B *Administrative Officers of the Medical School*—There should be competent supervision of the medical school by the dean or other executive officer who, by training and experience is qualified to provide leadership in interpreting high standards in medical education, and who has sufficient authority to implement such standards The dean should have the respect and support of the faculty and ready access to the university president and other officials The establishment and maintenance of a congenial and productive relationship with the local medical profession is desirable and important to the school and the profession It can be best assured through discussions of mutual problems by representatives of the school and practicing profession

Because of the diverse and heavy responsibilities placed upon the dean or executive officer, assistance by suitably qualified persons should be provided In many medical schools, for example, there is an assistant dean who devotes major attention to student affairs and another assistant for administering the postgraduate program In the conduct of the fiscal affairs of the school, the dean should have the assistance of a capable business officer

C *Faculty Organization*—The faculty should be organized into suitable departments representing the major basic science and clinical fields It is to be noted that this is primarily an administrative convenience it should not form the sole basis for structuring the curriculum Each such department should have a voice through appropriate committees of the faculty, in the administration of the academic affairs of the school Foremost among these should be an executive committee of the faculty composed primarily of the responsible administrative officials and the chairmen of those departments which have a major role in the educational program Usually these are Anatomy, Physiology, Biochemistry, Microbiology, Pharmacology, Pathology Medicine Surgery, Pediatrics, Obstetrics Gynecology, Psychiatry, and *Preventive Medicine and Public Health* This commonly utilized pattern allows for balance between basic science and clinical viewpoints in the committee's major function of determining with the dean, medical school policies for consideration, where indicated, by higher university authority

There should be such committees of the faculty as admissions promotions curriculum, postgraduate medical education, library, and others needed to serve the welfare of the school

The entire faculty should meet one or more times annually to provide an opportunity for all faculty members to become acquainted with and to discuss medical school policies and practices

Nominations for faculty appointments should originate in the faculty under the leadership of the dean Commonly, nominations for appointments at the lower academic ranks are made by the head of the department concerned, after thorough discussions of the nominees by the entire department At the professorial and the associate professorial levels this procedure may be profitably supplemented or supplanted by the appointment of a nominating committee composed of members of several departments, whose standing and judgment are generally unquestioned Recommendations are made to the faculty executive committee and dean who in turn, recommend to the president and board of trustees through established administrative channels

D *Finances*—Experience has established that a medical school cannot successfully carry out its many activities solely on the income derived from student fees Furthermore, certain of these activities are not directed primarily to the education of the medical student and he should not be expected to support them To adequately fulfill its obligation, a medical school should have other substantial sources of revenue

Each department within the school should prepare its budget in consultation with the dean, who is ultimately responsible for the total budget and its presentation to the proper authority

IV FACULTY

The school should have a competent staff with demonstrated interest and ability in teaching and research Such dual activity by the faculty is most likely to provide the educational milieu appropriate in a modern medical school as well as best carry out its objectives and responsibilities

Reasonable security of tenure and possibility of advancement should be assured in order that the personnel of the faculty may have adequate stability Compensation of full time members of the faculty should be sufficient to enable them to support themselves and their families

The number of instructors in each basic science and clinical department should be sufficient to meet the requirements of a modern medical educational program as well as allow adequate time for research by each instructor Full time teacher student ratios may vary widely depending on the course content educational methods, research activities, the availability of competent part time or voluntary staff and other factors Recognition of the values of intimate teacher-student relationships and widespread use of methods favoring the active role of the student in his own education have decreased dependence on didactic exercises Increasing use has also been made of interdepartmental teaching These factors have tended to increase the relative size of the instructional staff

The faculty personnel in the basic science disciplines should be almost entirely on a full time basis In the major clinical areas of medicine surgery, pediatrics, psychiatry obstetrics and gynecology, there should be a nucleus of full time instructors who have as their major responsibility the planning and supervision of the department's educational program and the conduct of research

V STUDENTS

The admission of students to a medical school should be the responsibility of a committee of the faculty Decisions regarding admission should be based not only on satisfactory prior scholastic accomplishment but also on such factors as personality and emotional characteristics, motivation, industry resourcefulness, and health Evaluation of these factors should be developed through personal interviews college records of academic and nonacademic activities results of medical college admissions tests, and pertinent letters of recommendation All records dealing with admissions should be carefully filed and procedures periodically reviewed in a search for better methods

At least three years of college education is required for most students and four years is recommended as a preparation for medical study Only rarely and under exceptional circumstances will a medical school be justified in admitting a superior student after two years of college study The National Committee of Regional Accrediting Agencies maintains a listing [1] of institutions of higher education which have been found to offer commendable educational programs Prospective medical students should acquire their preparatory education at a college of arts and sciences so listed and a medical school admissions committee should scrutinize with particular care the qualifications of applicants whose preparatory study has been done at other institutions

Because basic knowledge of biology, physics, inorganic and organic chemistry and human behavior are the foundation stones of medicine, adequate college courses in these subjects as well as demonstrated competence in English, should be required It is important that a medical college restrict its admission requirements to this minimum so that a college student preparing for the study of medicine will have the opportunity to acquire a broad liberal education or to study a specific field in depth according to individual interest and ability The complexity of modern medicine can be best served by physicians who in composite represent a variety of backgrounds in education and experience

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[1] A copy can be obtained by addressing the National Commission on Accrediting, 1785 Massachusetts Ave N W, Washington 6, D C

Advanced standing may be granted to students for work done in other medical schools, but only when a student's previous work is qualitatively and quantitatively equivalent to that required of regularly enrolled students as officially verified by correspondence with the school previously attended. Because of the diversity and greater integration of the total curriculum transfers are becoming increasingly difficult but usually are least disruptive of the student's education at the end of the second year.

The number of students who can have an adequate education in a medical school is related to the laboratory and hospital facilities available and to the size and qualifications of the teaching staff (see also IV Faculty). A close personal contact between students and members of the teaching staff results in a quality of educational experience that is not possible in an institution where the number of students is excessive in relation to the staff and facilities.

There should be a system of student records showing conveniently and in detail the admissions credentials as well as the grades or other records of performance in the school, by means of which an exact knowledge can be obtained regarding each student's work and qualifications. Qualitative evaluations of each student by instructors should be included in the student records.

An adequate provision for student counseling should be in effect. Many schools have an assistant responsible to the dean for such counseling.

There should be an active student health service providing for periodic medical examination and medical care for the student body. This is important not only in the maintenance of student health but also because of its inherent educational values.

VI FACILITIES

A medical school should own or enjoy the assured use of buildings and equipment adequate quantitatively and qualitatively to provide an environment most conducive to productivity of faculty and students in the fulfillment of the total objectives of the school. If possible all of the basic medical sciences should be housed in a building which adjoins in some manner the clinical facilities so as to promote cooperative teaching efforts and allow all departments ready access to clinical material.

A well maintained and catalogued medical library that can be used conveniently and effectively by both students and faculty is essential to a modern medical school. A trained librarian with experience in medical library work should be employed to supervise the development and operation of the library with the advice and assistance of an active representative committee of the faculty. The library should receive regularly the leading medical periodicals, the current numbers of which should be readily accessible. Adequate arrangements should be made by the librarian and the faculty to instruct all students in the use of the library at the beginning of their medical studies.

The school should own or have the unquestioned right to appoint the attending staff of a general hospital for clinical teaching. In the event that a medical school depends for clinical teaching on an independent hospital, it is essential that the clinical teachers, either on nomination by the school or by agreement in conference between school and hospital, be appointed by the hospital trustees to appropriate positions on the hospital staff. The teaching hospitals should be either adjoining or in close proximity to the school and should provide sufficient patients to permit students individually to observe, work up, and study the progress of the common variety of medical and surgical cases as well as a fair number of patients in each of the other major specialties.

There should be a sufficient number of patients so that each student on a hospital clerkship can be assigned that number of new cases of teaching value each week for thorough study that the faculty judges to be of maximum educational value. For example, this may be two new patients a week in one department or five new cases weekly in another, depending upon the orientation objectives and teaching program of the department concerned. Therefore, no fixed number of hospital beds or patients per student can be established because of the variables involved. Medical education should emphasize intensive long term study by each student of relatively fewer patients rather than superficial observation of many patients.

The school should own or have unquestioned use of well ordered facilities for the diagnosis, treatment and follow-up of ambulatory patients. The attending staff should be drawn from the faculty including those of senior rank. The number of new cases per day available to each student serving an outpatient clerkship should be compatible with the educational objectives and teaching program of the department as well as the school.

There should be sufficient offices, laboratories, and conference rooms as a part of or conveniently close to the hospital and outpatient clinical facilities to meet the needs of faculty and students. The hospital floors should provide adequate space and facilities for student clerks to study their patients.

VII EDUCATIONAL PROGRAM

Before the curriculum, methods and details of an educational program can be decided the objectives of the program should be formulated.

The objectives should clearly indicate that an undergraduate medical education provides merely a sound foundation for further education during the internship and residency periods, as well as throughout professional life. Four years of education in medical school is not by itself sufficient to prepare a physician for practice today. In fact, the yearly advances in medicine demand that each physician continue his education throughout his career. It is also obvious that no physician can master the whole spectrum of medical knowledge.

No rigid curriculum can be prescribed for accomplishing the objectives of medical education. On the contrary, it is the responsibility of the faculty of each school continually to re-evaluate its curriculum and to provide in accordance with its own particular setting and in recognition of advances in science a sound and well-integrated educational program. Each school should utilize those methods and approaches that the particular interests and abilities of the faculty indicate would provide the most effective education in the framework of the available facilities. The traditionally separate disciplines are finding rewarding educational and research results in working together cooperatively.

Through the various educational methods and to the extent deemed best by the faculty to accomplish the objectives of medical education, each medical school should offer education in the following subjects during the four year curriculum:

Human Anatomy, Biochemistry, Physiology, Microbiology, Pharmacology, Pathology, Clinical Laboratory Diagnosis, Physical Diagnosis, Internal Medicine, Pediatrics, Obstetrics and Gynecology, Preventive Medicine and Public Health, Psychiatry, Radiology, and Surgery. Specialty areas in medicine and surgery are best integrated in the teaching of the major disciplines. Consideration of social, emotional and environmental factors in health and disease is properly the responsibility of all clinical departments. Medical ethics, legal medicine, biostatistics and medical genetics should be included in the educational program.

The traditional emphasis on lectures, demonstrations and amphitheater clinics in which the role of the student is passive has shifted to greater use of individual student and small group projects, conferences, seminars and the "case method" of education, in all of which the student actively participates in his own education. The allotment of some unscheduled student time in the weekly program to allow for reading, research or other independent pursuits is desirable.

In the clinical years particularly, there is no substitute for the "case method" of clinical education, in which individual students work up individual patients under guidance in the hospital wards and in outpatient clinics. Such assignments should occupy most of the time and energy of third and fourth year medical students. The student should be encouraged to feel a genuine responsibility as part of a team of physicians studying the patient, and not as a classroom student with prescribed hours of work. The student's work-up of each case including progress notes should become part of the hospital's permanent record of the case. Such case studies should serve as the point of departure for informal conferences, rounds and reading. Lectures and other didactic exercises cannot replace though they may supplement bedside learning.

VIII ACCREDITATION OF MEDICAL SCHOOLS

The American Medical Association through its Council on Medical Education and Hospitals and the Association of American Medical Colleges through its Executive Council serve as the recognized accrediting agencies for medical schools Though retaining their individual identities, both groups work very closely in this activity through the Liaison Committee on Medical Education To be accredited a medical school must be considered approved by the Council on Medical Education and Hospitals and offered membership in the Association of American Medical Colleges This is granted on the finding of a sound educational program as a result of a survey conducted jointly by both organizations

It is the intent that newly developing medical schools should be surveyed during each of the first four years of active existence Provisional accreditation is granted when the program warrants, for the first two years of the curriculum and definitive action is taken during the implementation of the fourth year of the curriculum

Existing medical schools are surveyed at regular intervals Every attempt is made to fulfill requests for interim surveys as a consultant service to the medical schools

A medical school to be surveyed is requested to provide basic information on forms forwarded in advance After careful study of this material, the survey team of three or four members visits the medical school for three to five days On completion of its visit the survey team confers with the responsible administrative officials of the medical school and its parent university, indicating to them the nature of the major findings and recommendations A complete written report is prepared and considered separately by the Council on Medical Education and Hospitals and the Executive Council of the Association of American Medical Colleges and then jointly by the Liaison Committee on Medical Education The action of each group and the complete report is then transmitted to the medical school dean and university president

Application for and further information concerning this process can be obtained from the Secretary, Council on Medical Education and Hospitals, American Medical Association, 535 N Dearborn St, Chicago 10, or the Secretary, Association of American Medical Colleges, 2530 Ridge Ave, Evanston, Ill

APPENDIX B

A Guide Regarding Objectives and Basic Principles of Postgraduate Medical Education Programs

PREFACE

Physicians have become increasingly concerned with their need for effective continuing educational opportunities in order that the advances in medical knowledge may be applied in practice with as little delay as possible Though this need has been clearly recognized there has been a lack of basic guidance regarding what educational approaches would be most useful Postgraduate medical education poses a variety of problems Although a few are unique, many of the problems are similar to those that confronted other phases of medical education earlier in this century

In order to best explore the problems and useful approaches to their solution, the Council on Medical Education and Hospitals of the American Medical Association decided that it should have the advice of leaders in the profession having a diversity of backgrounds and viewpoints in practice and in medical education Accordingly, early in 1956, the Council sought and obtained from the Board of Trustees of the American Medical Association authorization to appoint an Ad Hoc Advisory Committee on Postgraduate Medical Education This committee which began its task in April, 1956, and is still at work, is composed of the following members

Dr Clarence E de la Chapelle Professor of Medicine and Associate Dean New York University Post Graduate Medical School
Dr John Conlin Medical Director Boston City Hospital
Dr Mahlon Delp Professor of Medicine and Chairman of the Department of Postgraduate Medicine University of Kansas School of Medicine
Dr William B Hildebrand general practitioner and Former President American Academy of General Practice
Dr James T Howell Assistant Medical Director Henry Ford Hospital representing Dr Edwin Crosby American Hospital Association
Dr Harold Jeghers Professor and Director of the Department of Medicine Seton Hall University School of Medicine
Dr Matthew R Kinde Director of Division of Medicine and Public Health W K Kellogg Foundation
Dr Samuel Proger Professor and Chairman of the Department of Medicine Tufts University School of Medicine and Physician in Chief New England Medical Center
Dr John Sheldon Professor of Medicine and Director Department of Post graduate Medicine University of Michigan School of Medicine
Dr Cassius J Van Slyke Associate Director National Institutes of Health
Dr Edward L Turner Secretary Council on Medical Education and Hospitals American Medical Association
Dr John C Leonard Chairman of the Committee Director of Medical Education Hartford Hospital

Dr Glen R Shepherd Assistant Secretary of the Council, is serving as staff for the committee The committee was asked to examine postgraduate medical education in its broadest aspects and to recommend to the Council a course of action that the American Medical Association could take that would be of assistance in increasing the educational stature of this field At the outset of the committee s deliberations, it became apparent that a basic guide needed to be formulated and published by the Council, a guide that would be applicable to courses as well as to other approaches such as community hospital–medical school cooperative efforts The following material is the product of this part of the committee s work

It is very gratifying to report that from its beginning the committee has pursued its task with extraordinary vigor and enthusiasm bespeaking the importance of the subject of its study All members of the committee have participated actively in its deliberations, and each member made a significant contribution to this outcome of the committee s work

The Objectives and Basic Principles of Postgraduate Medical Education formulated by the committee and endorsed by the Council is a major contribution to an initial clarification of goals and guiding principles in this continuing phase of medical education On behalf of the Council it is my pleasure to express deep appreciation to the members of the committee for the important work they have completed to date and to commend this document to all concerned for thoughtful study and active attention

H G Weiskotten, M D, Chairman
Council on Medical Education and Hospitals
American Medical Association

INTRODUCTION

The purpose of this publication is the presentation of objectives and basic principles of postgraduate medical education programs for the guidance of those active in this field as well as for those desiring to initiate courses and other programs for the continuing education of physicians

Vital new discoveries are of little immediate use against human disease until physicians in practice learn about them Regardless of how well prepared a physician may be at the time of entering practice the adequate knowledge of yesterday is not fully adequate today How best to meet this educational challenge is the broad problem of continuing postgraduate medical education

The American Medical Association and its Council on Medical Education and Hospitals have become increasingly concerned with the educational activities and needs in this postgraduate phase of medical education It is apparent that formal courses are only a part of the educationally significant programs in this field

In 1952 the Council initiated a study of the field of postgraduate medical education, the results of which were reported by Dr Douglas Vollan in The Journal in 1955 [1]

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1 Vollan, D Postgraduate Medical Education in the United States J A M A **157**:703-708 (Feb 26) 1955, ibid **157**:912-920 (March 12) 1955, ibid **157**:1119-1125 (March 26) 1955, ibid **157**:1302-1309 (April 9) 1955 ibid **157**:1492-1498 (April 23) 1955, ibid **158**:39-43 (May 7) 1955 ibid **158**:184-187 (May 21) 1955 ibid **158**:395 399 (June 4) 1955

A physician adds to his knowledge by participation in the following activities (1) reading of the medical literature (2) consultations with colleagues (3) hospital staff meetings and conferences (4) local state, and national meetings of general and specialty medical societies, (5) formal postgraduate courses and (6) regional hospital–medical school educational programs

The educational implications of reading the medical literature consulting with colleagues and medical society meetings are significant but they are under the direct control of the individual physician The enormous and increasing bulk of medical literature on even relatively restricted subjects makes difficult the maintaining of a current knowledge by this means alone The routine medical society meetings are often of necessity not primarily educational

Postgraduate programs by hospitals medical schools, and medical societies on the other hand, involve groups of people and educational techniques having close analogies with undergraduate and graduate medical education All three phases of medical education may involve the same educators It is with such programs—formal courses and regional hospital–medical school cooperative educational efforts—that the Council on Medical Education and Hospitals hopes to be of assistance

The basic problems confronting those who plan programs for the continuing education of physicians are analogous to the problems that faced those responsible for undergraduate medical education fifty years ago and that concerned graduate medical education more recently These problems include (1) a lack of clear definition of objectives (2) a wide range in the educational value of the courses and other programs offered (3) insufficient opportunities for physicians to participate in educationally sound programs (4) difficulties in financing and (5) lack of national guidance and inadequate sharing of experience for those desiring to establish or improve postgraduate medical education programs

The Ad Hoc Advisory Committee on Postgraduate Medical Education described in the Preface has prepared and the Council endorses the Objectives and Basic Principles for Postgraduate Medical Education Programs as set forth in the following pages These principles are applicable as the explanatory notes suggest to any concerted educational effort involving physicians This publication is an initial step in a long-range program that the Council will pursue to assist in the further development of postgraduate medical education After a suitable period following publication of this guide, a continuing appraisal of postgraduate programs may be initiated

OBJECTIVES

The ultimate aim of postgraduate medical education is to make it possible for each physician to use in his practice the modern medical knowledge that continuously becomes available Adequate professional growth ensues through the participation of each physician in suitable programs of continuing education in addition to his own experience and reading

Postgraduate educational programs should as a result of current advances in the basic science and clinical fields favorably augment and modify an adequate initial education These programs should make possible the acquisition of such new skills in the field of original competence as scientific advances require All continuing education should strengthen the habits of critical inquiry and balanced judgment that denote the truly professional and scientific man

BASIC PRINCIPLES FOR POSTGRADUATE MEDICAL EDUCATION PROGRAMS

1 There should be ADMINISTRATION of the postgraduate program by a responsible person having the respect and support of the professional staff of the organization or institution, an administration having as its goal an educational program in the highest interest of the medical profession, as epitomized in the Objectives previously stated There should be continuity of administration, evidence of careful advance planning of the program, and a suitable voice by the teaching staff in the postgraduate program

The majority of medical schools express a sense of responsibility for the continuing education of physicians To implement their programs, some schools have appointed assistant deans for postgraduate medical education or directors of departments, sections or committees charged with over-all planning and coordination of such continuation education [2]

The assistant dean or director has such responsibilities, in consultation with the dean and/or executive committee of the faculty as determining the specific needs and desires of the profession in the region for the subjects of courses and other programs, stimulating the faculty to plan programs well in advance, making certain that the facilities needed will be available at the time scheduled, supervising adequate enrollment records in courses, serving as liaison with local and national medical societies, and otherwise coordinating the resources of the school for their most effective use in the postgraduate program undertaken Continuous administrative supervision of the postgraduate program by a responsible person results in a higher quality educational experience than is otherwise possible

Hospitals have found effective the designation of a director of medical education to be concerned with supervision of internship and residency programs Such an individual could become the executive officer of the postgraduate program of the hospital serving in a similar capacity and for similar purposes as the director of the postgraduate program in a medical school

Any cooperative educational effort between a regional hospital and a medical school should have the understanding and approval of the medical staff, administrator and trustees of the hospital as well as the understanding and approbation of the dean and the executive committee of the faculty of the medical school

Where a hospital or medical school is nearby medical societies and other organizations concerned with cosponsorship of educational programs for physicians may find it best to work cooperatively with the hospital or medical school as the actual location of the program because of the personnel and facilities uniquely available there The advantages of administrative continuity of such relationships by a medical society or other organization are at least partially as compelling as is such continuity of administration for hospitals and medical schools

2 The BUDGET should be adequate to the educational program undertaken and to its continuing improvement

Sole dependence upon tuition fees tends to restrict unduly the quality of postgraduate courses In general therefore, support for such activities should not be confined to anticipated income from tuition, and other financial resources should be available

The support of adequate postgraduate courses and regional cooperative programs necessitates the furnishing of faculty personnel, certain special teaching facilities for physicians attending courses, transportation factors involved in regional and circuit programs, honoraria, and administration the total support of which is in excess of tuition income alone It is important that the faculty personnel be sufficient to continue to provide an adequate program of undergraduate medical education when the postgraduate program is in effect

Hospitals expend funds for the salaries of directors of medical education when they are full time for travel expenses of residents and interns to the medical school when that is a part of the program, for special facilities such as adequate library, conference rooms and audio-visual equipment needed in the various programs and for assistants

3 The TEACHING STAFF should consist of physicians and their associates of proven ability, training, and experience with an interest in and dedication to the development of carefully planned educational programs in the best current intellectual and professional interest of the participating physicians

There should be an adequate number of instructors for each program to permit the use of the more effective participative methods of education (see Principle 6) In the other phases of medical education and in other fields of education, the number of students per teacher becomes much smaller as education becomes more advanced This would seem to have significant implications in postgraduate medical education

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[2] Fifty-sixth Annual Report on Medical Education in the United States and Canada by the Council on Medical Education and Hospitals of the American Medical Association J A M A **161**:1666-1667 (Aug 25) 1956

Instructors participating in any course or other educational program should be capable of providing explanation of the basic science mechanisms of health and disease and their clinical applications in the prevention, diagnosis and treatment of disease The essence of professional knowledge as compared to purely vocational, is understanding of the basic sciences to provide a know-why as well as a 'know-how' of the practice of medicine

The resident staff of a hospital, and particularly of a regional hospital, may form a valuable part of the teaching personnel of a postgraduate program It is generally considered that the attending staff of a hospital in its contacts with interns and residents in an approved program stimulates and educates the resident staff It is also true that the intern and resident staff coming recently from the research and teaching ferment of a medical center can stimulate and inform the attending staff of a community hospital Such a two way exchange of ideas and mutual ignition of curiosity is implicit in any effective graduate educational program It is at times difficult to delineate clearly whether the graduate or postgraduate medical education implications are the greatest in various features of some of the existing and experimental ventures between regional hospitals and medical schools The benefit to the attending staff is directly related to its wholehearted participation in the various conferences, ward rounds, and other activities of the program

4 The CURRICULUM of any postgraduate medical education program should be the result of thoughtful planning well in advance of the date scheduled for the beginning of the program

In the case of courses, this advance planning should include selection of the general subject(s), the hour by hour schedule of topics and activities, the assignments of these to specific members of the teaching staff, and the selection of the appropriate methods of education

The value of a postgraduate program depends to a considerable extent on the amount of thoughtful planning that occurred months in advance of its beginning Even continuous cooperative efforts between hospitals and medical schools require periodic self-appraisal of the purposes, the methods of education, and the teaching staff Advances in medicine are occurring so rapidly that no course or other program should be repeated annually without such restudy

Thoughtful planning also means that the content of courses and other programs should be based upon the demonstrated needs and wishes of the physicians of the region, as well as upon advances in medicine The means of ascertaining the needs and wishes of physicians will vary Of great assistance is a close and cordial liaison among medical societies, medical schools, and hospitals of the region

Attention to the newer knowledge of the basic mechanisms of disease and of treatment should be a part of postgraduate programs along with the more immediately applicable information

It is desirable that more institutions and organizations responsible for courses and for regional hospital programs design their content so that advances in all the major areas of medicine can be covered every four to five years Cooperative planning in each region would be of assistance in this respect

Postgraduate courses which by their duration and nature cannot fully prepare any physician for entering the practice of a specialty should be so structured in all subjects and especially those of the surgical specialties that the physicians participating will fully realize the dangers of using limited knowledge without restriction and without consultation It is because of the hazards involved that postgraduate courses on surgical techniques often are limited to enrollment of those who have had adequate basic education in surgery The longer period of study needed for surgical practice is best spent in approved programs of graduate medical education rather than in short postgraduate courses There is much information regarding diagnosis, the indications and contraindications for surgery, the basic science involved in such therapy, and the expected outcome of various surgical procedures that should be made available to all physicians

5 There should be available FACILITIES that encourage participative methods of education Though lectures by professionally well qualified speakers are a means whereby physicians obtain information, it is felt that such a method of education cannot alone provide an adequate postgraduate program in the context of modern education The facilities mentioned above should include the availability, when appropriate to the content of the program, of patients and their case records and other necessary records such as roentgenograms, electrocardiograms, surgical pathology tissues and/or reports, laboratories, library, conference rooms, classrooms, and audiovisual aids, all adequate for and suitable to the specific program

The facilities stipulated are those found in hospitals and medical schools Short courses sponsored or cosponsored by other organizations could well cooperate with nearby hospitals and/or medical schools in order to utilize their facilities

A hotel ballroom or a lecture hall used alone and isolated from a hospital or medical center does not provide those essential facilities needed in modern medical education, whether it be for students working toward the M D degree or for physicians in practice enrolled in a course or participating in other primarily educational programs

6 The EDUCATIONAL METHODS should include more than a series of lectures or panel discussions in which the physicians are primarily passive recipients Methods requiring active participation include live clinics and bedside rounds, seminars, open question periods, laboratory work, and study of patients under supervision

There is ample evidence in the undergraduate and graduate phases of medical education that overemphasis on purely didactic methods provides an educational program that is inferior to one requiring active participation

It should be noted that any potentially active method of education, such as ward rounds can become a purely passive exercise if a group is too large e g , bedside groups of 6 to 8 physicians would be likely to encourage a participation of each, while bedside groups of more than 10 might easily consist of standing lectures

Strictly as aids to education rather than as the sole method (except in the case of home study courses by television or audiovisual kits), the use of suitable colored slides and motion pictures, models, and color television is encouraged However, the import of television to medical education is still in the exploratory and experimental phase

One of the major problems in postgraduate medical education is lack of concern for the methods of education used This is particularly true of courses, according to a study of the 1955-1956 offerings made by the Council on Medical Education and Hospitals In the Annual Report on Medical Education in the United States and Canada,[3] the section on postgraduate courses summarized this data as follows The more active participative methods of instruction were used in 84 7% of the postgraduate courses offered by hospitals, 59% of the courses offered by medical schools, and in only 22% of the courses offered by medical societies

When lectures are utilized, it is valuable also to conduct group discussions and question-answer sessions as follow through techniques Similarly, though appropriate audiovisual aids are of assistance they should be simply a part and integrated into a planned educational program Catalogues containing lists of suitable motion pictures and their sources are available from the Director of Medical Motion Pictures and Television, American Medical Association, 535 N Dearborn St, Chicago 10

Surgical galleries and demonstration of surgical techniques to large groups of passive spectators leave much to be desired and also fall short of fulfilling educational needs It is conjectural whether even skilled surgeons can add techniques to their armamentaria simply by watching other surgeons at a distance It would seem that some modification of the medical traineeship or residency applicable for the postgraduate student could be developed Thus surgeons desiring to learn a new procedure might have opportunities to perform it repeatedly under the supervision of its originator or his protege in a manner providing a significant educational experience

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[3] Fifty-sixth Annual Report on Medical Education in the United States and Canada by the Council on Medical Education and Hospitals of the American Medical Association, J A M A **161**:1668-1669 (Aug 25) 1956

The patients of physicians on the attending staff of community hospitals can be utilized in a program of continuing education if the other facilities and a teaching staff are provided, perhaps in part by cooperative arrangements between the regional hospitals and medical schools Such education if carefully planned and enthusiastically put into effect by the attending staff of the regional hospital would be more truly continuous education and thus more valuable than is likely to be the effect of sporadic study in formal courses However both kinds of programs—formal courses and regional hospital–medical school cooperative efforts—are necessary to meet the over-all needs of the profession

7 **METHODS OF EVALUATING the effectiveness of postgraduate programs should be developed**

Experiments directed toward ways of better accomplishing such evaluation are encouraged Evaluation should be concerned with the long term effectiveness of various programs as well as the more immediate improvement in the knowledge of those participating There are possibilities for instance through use of medical audits to evaluate results of courses and other educational programs in terms of better patient care Such audits in themselves may have educational implications

8 **Each PHYSICIAN'S REWARD for participation in postgraduate medical education always should be his improved ability to care for his patients and the stimulation of his own spirit of intellectual adventure**

Any certificate granted at the completion of a postgraduate program or series of programs should not be nor resemble a diploma attesting to special skill nor be reasonably susceptible of such interpretation Postgraduate medical education is not intended to provide an educational experience adequate for beginning the practice of a specialty or subspecialty That is the concern of graduate medical education, i e residency and fellowship training Therefore it would be inappropriate for any document attesting to postgraduate study to be subject to misinterpretation

SUMMARY

The basic principles of postgraduate medical education are the same as are those of undergraduate and graduate medical education In addition to students an effective program requires leadership careful planning suitable facilities and effective teachers who use dynamic methods of education that enlist the participation of the student For too long, the methods and facilities found lacking 50 years ago for effective undergraduate medical education have continued to be employed in many postgraduate courses and in some other activities labeled as educational for physicians

The Council on Medical Education and Hospitals expects that publication of this guide will be the first step in a long range program that will be of assistance in the improvement and increase of postgraduate educational activities After a suitable period following publication of this guide a continuing appraisal of postgraduate programs may be initiated

APPENDIX C

Straight Internships Versus Rotating Internships

The Advisory Committee on Internships in reporting the results of its study in 1952 favored the rotating internship over the straight internship This same attitude was expressed by the Ad Hoc Committee on Internships in reporting its study in 1954 The Council on Medical Education and Hospitals states in the Essentials of an Approved Internship (1955) It is the opinion of the Council that the best basic education is provided by a well-organized and conducted rotating internship The Council, however has continued to approve straight internships in Medicine Surgery, Pediatrics, and Pathology believing that this type of service may be justified in these fields for medical school graduates who have definitely determined to follow a specialized or academic career

At the June, 1956 Annual Session of the American Medical Association the Reference Committee on Medical Education and Hospitals considered two resolutions (Nos 11 and 38) favoring rotating internships, which were introduced into the House of Delegates The following is quoted from the Report of this Reference Committee as adopted by the House of Delegates

Your reference committee believes that there is a growing body of opinion within the profession in favor of a rotating internship It also recognizes the difficulties involved and the dangers to some established educational programs were action taken precipitously to disapprove straight internships which are about 10% of the total number now approved Your committee recommends the following substitute resolution for resolutions 11 and 38

Resolved (1) That the Council on Medical Education and Hospitals be requested to increase its efforts to encourage rotating internships rather than straight internships in all hospitals approved for the latter and (2) that a report of the results of this effort be submitted annually

Since June 1956 no new applications for straight internships have been approved by the Council pending clarification of policy in regard to this type of service Previously approved straight internships have maintained their approved status

In order that the Council might have adequate data and opinions on which to base its report to the House of Delegates, a letter was sent to the Administrator of each hospital offering approved straight internships requesting a statement regarding its attitude toward straight internships and whether or not they should be discontinued in favor of rotating internships It was suggested that this letter be shown to the Chief of each Service for which straight internships were approved and also to the Chairman of the Intern Committee in order that their individual views might be taken into consideration in expressing an opinion for the hospital

Ninety-two letters were sent out—to 63 hospitals affiliated with medical schools and to 29 nonaffiliated hospitals (An affiliated hospital is one which is listed as a major teaching hospital in the Internship and Residency Number of THE JOURNAL of the American Medical Association) Sixty-three replies were received from 46 affiliated hospitals (73%) offering 880 straight internships, and from 17 nonaffiliated hospitals (59%) offering 71 straight internships In the following table, the opinions expressed are summarized

	Affiliated Hospital	Nonaffiliated Hospital
Straight internships only should be allowed	7	1
Rotating internships only should be allowed	0	6
Both straight and rotating internships should be allowed	39	10
	46	17

Affiliated hospitals were unanimous in stating that straight internships *should not be discontinued* 85% of these replies indicated that there is a place for both straight and rotating services The majority (59%) of the opinions expressed by the nonaffiliated hospitals favored continuation of both types of internship, 35% favored discontinuation of the straight internships It should be noted in comparing opinions expressed that the great bulk (94%) of the straight internship positions represented by these figures lies with the affiliated hospitals

Opinions varied in almost every possible manner Individual opinions expressed by chiefs of services in the same hospital were at variance in some instances Some exact statements were received other expressions were practically unlimited as to space and subject matter Vehement statements were received from numerous hospitals and individuals, protesting the dictatorial attitude of the American Medical Association in attempting to regiment the type of internship

The principal arguments expressed for and against the straight internship and the rotating internship may be summarized as follows

STRAIGHT INTERNSHIP

Arguments for

1 A student is ready for specialized training at the internship level due to his having had a rotating service in his junior and senior years of undergraduate medical education

2 The straight internship is less likely to be a service internship than the rotating internship

3 The straight internship allows individualization to fit the needs of a particular student

4 The continuity of patient care is better, the supervision is better, greater responsibility can be delegated, and the intern becomes an integral part of a team

5 Reduces length of time necessary for graduate medical education

Arguments against

1 Straight internships should be limited to university hospitals where the attending staff is constantly available for instructional purposes

2 Interns on a straight service may be unhappy because they have selected the wrong specialty in which to train

ROTATING INTERNSHIP

Arguments for

1 Provides basic training in all branches of medicine, which is essential—the specialist first must be a good all around doctor

2 A graduate who is definitely planning to follow a specialized or academic career obtains maximum benefit from a preliminary rotating internship

3 The rotating internship is ideally suited to the needs of a physician entering general practice without additional training

4 It allows further time for choosing a specialty

5 It provides better rounded training and a firm foundation for future training and development

Arguments against

1 A rotating internship is an unnecessary repetition of fourth year medical school programs

2 Provides superficial experience because of rapid rotation—there is good breadth but little depth of experience

3 Provides only a superficial and often unsatisfactory contact with the subjects matter of each specialty

4 Provides inadequate educational experience either for the competent practice of medicine or as a groundwork for further specialization

5 There is a lack of thorough training in any area covered by the rotation service

6 Dilutes graduate training by giving superficial training in other specialties

7 Diversification may lead to a false sense of adequacy for practice in specialized fields for which he is not equipped

8 The degree of responsibility necessary for the rapid development of clinical abilities cannot be allowed

9 The rotating internship is too much trouble and is too unpredictable

10 With few exceptions, the service aspect predominates over the educational aspect in the rotating internship

11 In a university hospital the rotating internship results in certain areas of overlap and conflict between the activities and prerogatives of senior clerks and rotating interns

The following are direct quotations taken from replies received

FLEXIBILITY OF INTERNSHIP

1 The internship is an educational experience should be subject to continual change and evaluation for improvement

2 There is no fundamental conflict between the rotating internship and the straight internship They serve different purposes and as such they both deserve to be maintained

3 A greater emphasis should be placed on the educational value of an internship, and the question of whether it be of one particular type or another should be secondary

4 The value of an internship depends upon the quality, quantity and breadth of the experience To approve or disapprove of an internship because of the presence or absence of rotation seems illogical A good straight internship will always be better than a mediocre rotating service and vice versa

5 Our American system of medical education is respected because of the quality of our teachers, students, clinical facilities, and research opportunities, and not because of any particular schedule of teaching Is there any information which would indicate that graduates of straight internships have in the past made a smaller contribution to the community than graduates of rotating internships?

6 There is no one best way to handle a problem such as this, and it is not possible to take out a patent on any type of educational training program and exclude all others which have a proven worth

7 The field of medicine is too vast, too complex and too dynamic to justify the adoption of any one specific pattern of internship

8 The quality of an internship cannot be measured by its form, but only by its content and the quality of supervision and instruction

9 A rotating internship is superior to a straight internship in private or voluntary hospitals Where the hospital involved is a university hospital, or where the clinical service is under the direction of the medical school faculty, a straight internship may be equally desirable as training and in one respect is superior since it provides prolonged contact with teaching personnel

10 Perhaps the better teaching hospitals should band together to preserve the straight internship while encouraging good nonteaching hospitals to establish a rotating type designed for training of the practitioner

INTERFERENCE AND REGIMENTATION

1 The needs of the individual graduate and the resources and objectives of the individual hospitals will vary, hence the types and forms of the internship should vary We oppose any attempt by any group, governmental or private to regiment the form of the internship

2 To attempt to standardize or to restrict this important period of medical education is as improper as it is to regiment undergraduate education

3 We are unalterably opposed to the apparent intention of the American Medical Association to force the adoption of rotating internships throughout the country We believe the acceptance of such regimentation would seriously impair the capacity of our hospitals to provide their present superior level of internship training

4 Regimentation of the form of the internship can only discourage that quality of inventiveness which has been the greatest insurance of a high level of medical care for the American people

5 It is particularly desirable that the universities and the teaching hospitals affiliated with them be given wide latitude in experimenting with a variety of educational procedures It would be a mistake to interfere in an arbitrary manner and to force a degree of uniformity which is at odds with the traditions of this country

6 In a free society, the patterns of medical education in regard to internships will certainly be resolved by medical educators and their freedom of intelligent action should not be hampered by any special segment of the profession

7 The rise to excellence of American medicine is due in part to the high standards of the internship residency program If medical educators are to continue to improve this training and are to meet new demands and changing conditions, creativeness and the opportunity to experiment with various methods of education must be preserved and not be regimented out of existence

8 I view the proposal to prohibit the straight internship as a manifestation of the assumption of dictatorial powers by a democratic body, as the usurpation of the medical graduates right to exert some degree of choice in the type of postgraduate training he is to receive

9 Our hospital holds that the issue is not the virtues or faults of straight internships in comparison with rotating internships, but rather one of freedom in the conduct of educational programs A university affiliated hospital, one of whose primary functions is medical education, must resist the possible imposition of restrictions in the field of medical education by the action of any body within the medical profession Certainly our large teaching centers have a responsibility to experiment in educational techniques Any effort to regiment them or to curtail educational freedom must be vigorously opposed

10 While there is room for honest differences of opinion about the respective merits of straight versus rotating internships, there is certainly no defense for arbitrary and compulsory standardization in this sphere If standards of quality are

maintained it would be wise to permit a margin of freedom of choice and autonomy in approved institutions for the training of interns The regimentation, as the offering of only one type internship to medical school graduates, would act as a deterrent to the future progress and development of American medicine

MISCELLANEOUS QUOTATIONS

1 A straight medical internship is the best background for a man entering general practice

2 A two year internship with relatively long periods on each major service might well offer better preparation for general practice than is now readily available, as well as being an appropriate prelude to residency training

3 If obstetrics and gynecology cannot have its own straight internship and so appeal directly to fourth year medical students, then it would be better for us if everyone else had a rotating internship

4 The general practitioner of the future will be dealing largely with nonsurgical conditions and should be properly prepared in the disciplines of general medicine and perhaps should have experience in pediatrics and obstetrics

5 We believe that it would truly constitute a great step *forward if the sponsoring agencies of the Matching Plan* were to agree on a single reasonable stipend which would be the same for all hospitals

6 It seems likely that the Council and the House of Delegates might render an important service by emphasizing to the Department of Defense the importance to the military and civilian programs of changing their procedures so that a two year internship is practical

7 We would be approaching the future in a sounder fashion if the intern year were completely abolished

COMMENT

The preceding documentation of historical and statistical data together with a summarization of opinions obtained from responsible hospital administrators and medical educators has been presented as a report of progress for study by the House of Delegates Following further study of the internship, the Council will submit a definitive report and recommendations at a later date

RESOLUTIONS TO BE INTRODUCED AT NEW YORK MEETING

The Secretary of the Association has been informed that the following resolutions will be introduced in the House of Delegates at its session to be held in New York, June 3-7, 1957, by delegates from Nebraska, North Carolina, and Colorado respectively

No 1 Resolution on Establishment of Periodic Publication

WHEREAS The American Medical Association engages in numerous activities and provides numerous services in the health field, and

WHEREAS These activities and services are not known to many people in the health field including both members of the American Medical Association, as well as nonmedical people and

WHEREAS This lack of information is due primarily to lack of a mechanism of communication between the American Medical Association and those people in the field, therefore be it

Resolved That the American Medical Association establish a suitable regular periodic publication, preferably a Reader s Digest type of format, and be it further

Resolved, That this periodic publication be made available to all people in the health field for the primary purpose of informing them of the activities and services of the American Medical Association

No 2 Resolution on Proposed Changes in the Constitution and Bylaws

Resolved, That Article VIII of the Constitution shall be amended and on adoption by proper procedure shall read as follows

ARTICLE VIII—BOARD OF TRUSTEES

Section 1 Composition—The Board of Trustees shall consis of the general officers of the Association as defined in Articl VII, Section 1

Section 2 Term of Office—The term of each general office as a Trustee shall be for the same term of office he holds as an elected general officer as provided in the Constitution an Bylaws

Section 3 Duties—The Board of Trustees shall have charg of the property and financial affairs of the Association and shal perform such duties as are prescribed by law governing directors of corporations or as may be prescribed in the Bylaws

Resolved, That Chapter XVI, Section 1, of the Bylaws shall be amended and on adoption by proper procedure shall read as follows

CHAPTER XVI—BOARD OF TRUSTEES

Section 1 Composition—The Board of Trustees shall consist of the general officers of the Association elected as provided for in Article VII of the Constitution The term of the general officers as Trustees shall be for the same term each holds as a general officer

No 3 Resolution on Free Choice of Physician

WHEREAS, The time-honored right of the American citizen freely to choose his physician from among all those available and legally qualified has contributed immeasurably to the advancement of American standards of medical care to their present world preeminence, and

WHEREAS, Deterioration in the quality of medical care rendered has developed in systems of medical care which deny patients this traditional American right, and

WHEREAS, The definition of the free choice of physician in the Principles of Medical Ethics of the American Medical Association recognizes the validity of interest of a third party interjected between the patient and his choice of physician only when that third party assumes legal and financial responsibility for occupational disease or injury, and

WHEREAS, This House of Delegates reiterated its adherence to this free choice principle as a fundamental right of American citizens which contributes to the betterment of medical care by unanimously adopting Resolution No 24 at the June, 1956, Chicago Session, thereby directing the Councils on Medical Service and Industrial Health to revise their published 'Guiding Principles for Evaluating Management and Union Health Centers to conform to the free choice principle now therefore be it

Resolved, That this House of Delegates again reiterates the adherence of the American Medical Association to the principle of the free choice of physician as currently defined in the Principles of Medical Ethics as being essential to the welfare of the patient, and be it further

Resolved, That the Judicial Council is requested to caution all members of the American Medical Association that voluntary participation in systems of medical care which deny patients their right of free choice of physician as so defined, other than as may be required by the mandates of law, constitutes a violation of the Principles of Medical Ethics

CONTINUOUS HEALTH SUPERVISION OF CHILDREN

The National Congress of Parents and Teachers has promoted, since 1925, the medical examination of children on school entrance in what has been called the 'Summer Round-up' This program has had the support of the American Medical Association and many state medical societies However, for several years physicians have felt such a program was inadequate and undesirable in many ways Therefore, in January, 1956, the National Congress asked representatives of 20 organizations interested in child health to advise them on how to extend this single examination into a more effective program of child health supervision This health advisory committee made a proposal which was accepted by the board of managers of the National Congress of Parents and Teachers in May, 1956 Essentially, this is

> I That the National Congress of Parents and Teachers adopt a policy supporting and encouraging a program of continuous health supervision of children from birth through their school experience, rather than only a program of single appraisal on school entrance
>
> II That the National Congress of Parents and Teachers recommend to its local units a promotional and educational program that will tend to bring children and their parents into effective contact with the health resources of the community Wherever possible, these should be the physician and dentist who normally serve the child or family, whether they be working in private practice or in a community health service

The American Medical Association was represented on the health advisory committee of the National Congress of Parents and Teachers by the Chairman of the Committee on Maternal and Child Care of the Council on Medical Service and the Director of the Bureau of Health Education It is reasonable, therefore, that these units of the American Medical Association should cooperate with the National Congress in promoting the concepts envisioned by this revised program

One facet of this cooperation is the action taken by the Council on Medical Service On April 13, 1957, the Council approved the following resolution made by its Committee on Maternal and Child Care

> The Maternal and Child Care Committee of the Council on Medical Service, American Medical Association reaffirms its approval of the principle of continuous health supervision of children from birth through their school experience rather than only a program of a single appraisal on school entrance It also recommends that where possible, this should be done by the physician and *dentist who normally serve that child and family* preferably his personal physician and dentist The Committee welcomes the support of the National Congress of Parents and Teachers

It is the hope of the Council on Medical Service that physicians will give every possible assistance to the local parent-teacher associations to insure the medical soundness of their proposed program

The Bureau of Health Education of the American Medical Association submitted this proposed program to the Joint Committee on Health Problems in Education, a long-established joint committee of the National Education Association and the American Medical Association The Joint Committee has made the following statement

> The Board of Managers of the National Congress of Parents and Teachers adopted a resolution on May 24, 1956 urging local Parent-Teachers Associations to inaugurate a promotional and educational program that will tend to bring children and their parents into effective contact with the health resources of the community (medical, dental and public health) The Board of the Congress adopted a policy supporting and encouraging a program of continuous health supervision of children from birth through their school experience by physicians and dentists normally serving the family rather than only a program of single appraisal on school entrance
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> The Joint Committee on Health Problems in Education at its annual meeting on March 11, 1957, reiterates its long standing belief in the concepts and philosophy expressed in this proposal and commends the extension of such programs of continuous supervision to parents to school to health and other community groups

Under the leadership of Dr Henry F Helmholz, health chairman of the National Congress of Parents and *Teachers, state and local chairmen of parent-*teacher association groups are being urged to make contact with their local medical societies, local or state chapters of the American Academy of Pediatrics and American Academy of General Practice, and other groups concerned with child health at the state and local level It is hoped that there will be complete cooperation among the professions and organizations interested in the health of children from birth through the school years, so that a true child-centered program can be developed This hope is reiterated by Dr Helmholz in a Guest Editorial in this issue of THE JOURNAL (page 52)

The Parent-Teacher Association has no interest in dictating medical care policies but will concentrate its attention on parent education and community organization concerning periodic health appraisal and continuous health supervision

As stated in the various resolutions, it is preferable that health supervision be the responsibility, wherever possible, of the physician and dentist who normally serve that particular child Here is an unusual opportunity for physicians to work with community organizations that have a mutual interest in the health of children and the extension of the single-examination Summer Round-up into a continuing child health supervision activity

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

POSTGRADUATE COURSES

A 5 day 40-hour postgraduate course on **medical otolaryngology** will be offered May 27-31, 1957, to full-time specialists This course on headaches, immunology, and allergy as related to otolaryngology will consist of laboratory work, lectures, panel discussion, open question periods, and audiovisual aids It will be held in a hotel The fee is $150 For further information, write to the Hansel Foundation, 634 N Grand Ave, St Louis 3

Postgraduate Course on Poliomyelitis

It has been reported to the Council that the dates of the postgraduate course in poliomyelitis treatment offered by the Children's Medical Center, Boston, have been changed The 40-hour 5-day course will be offered twice this summer June 10-14 and Aug 5-9, inclusive Methods of education include patient demonstrations, live clinics, ward rounds, seminars, lectures, panel discussions, open question periods, and visual aids Enrollment is open to physicians in general practice and in part-time specialty practice at a fee of $50 For further information, write to Assistant Director of Clinics, Children's Hospital, 300 Longwood Ave, Boston 15

MEDICAL NEWS

CALIFORNIA

Infectious Encephalitis—The U S Public Health Service states in its morbidity and mortality weekly report for March 22 that the California State Department of Public Health has supplied a summary of acute encephalitis cases reported in 1956 From a total of 560 cases, 14 were laboratory confirmed cases of western equine and 7 were St Louis types of infection About 45% of the total were reported as mumps encephalitis Of 1,047 pools of mosquitoes tested, 143 yielded WEE virus and 2 the St Louis virus Laboratory confirmation of cases in horses was obtained in only six animals During 1956, 124 squirrel brains were submitted for rabies examination but none was positive for this infection WEE virus was isolated from four of these animals

Appoint Acting Dean—Dr Robert H Alway, executive head, department of pediatrics, Stanford University School of Medicine, Stanford University–San Francisco, was named acting dean of that institution March 8 He replaces Windsor C Cutting, who resigned as dean in January but continued in the post until a successor could be found A graduate of the University of Minnesota Medical School, Minneapolis, Dr Alway joined the Stanford medical faculty in 1949 after teaching six years at the University of Utah School of Medicine, Salt Lake City He became head of pediatrics at the University of Colorado School of Medicine, Denver, in 1953 but returned in 1955 to assume a similar post at Stanford Former dean Cutting will continue as professor of pharmacology, resuming the teaching and research which was curtailed by his appointment as head of the school in 1953

GEORGIA

Seminar on Kidney Diseases—The Atlanta Pathology Seminar Group announces that Dr Arthur C Allen, associate pathologist, Memorial Center for Cancer and Allied Diseases, New York City, will moderate a seminar on kidney diseases May 10 in the auditorium of the Fulton County Medical Society, Atlanta The seminar will be followed by a lecture, 'Clinicopathologic Meaning of the Nephrotic Syndrome"

Personal—Dr Harry D Bruner, chairman, department of physiology, Emory University School of Medicine, Atlanta, Ga, since 1952, has been named chief of the medical branch, Division of Biology and Medicine, Atomic Energy Commission, Washington, D C For three years prior to joining the Emory staff, Dr Bruner had served as a chief scientist with the Oak Ridge Institute of Nuclear Studies medical division —Dr E James McCranie, Augusta, has been named a professor in the department of psychiatry, of the Medical College of Georgia —Dr George Williams Smith, Augusta, has been appointed associate professor of surgery and chief of neurosurgery at the Medical College of Georgia

ILLINOIS

Chicago

Lecture on History of Surgery—Chauncey Leake, Ph D, Ohio State University School of Medicine, Columbus, will present the 10th and final lecture in the present series on the history of surgery on May 14, 8 p m, at the International Surgeons Hall of Fame, 1524 Lake Shore Drive Dr Leake's subject will be The Rise of Modern Surgery' The lecture, sponsored by the International College of Surgeons, is open to the medical profession and the public

Personal—The James Alexander Miller Fellowship for the year beginning July 1 has been announced by the New York Tuberculosis and Health Association The grant of $7,000, made annually to support fundamental medical research in tuberculosis, will go to Dr John E Kasik, a senior assistant resident physician in the department of medicine at the University of Chicago Clinics The antituberculosis drug, cycloserine, will be the subject of Dr Kasik's research

Howard Sloan Grant—The annual Dr Howard Sloan Physiology Grant of $500, in commemoration of the birthday of Dr Sloan, has been made to the Chicago Medical School An alumnus of the school, Dr Sloan was also a fellow in the department of physiology at the time of his death in 1952 He had achieved recognition for his research on the artificial kidney The grants have been used for the purchase of special equipment for cancer research in the physiology laboratories and to support important studies

First May Cave Willett Fellow—Dr Kurt Aterman, senior lecturer, department of anatomy, Medical School, Birmingham, England, has been appointed the first May Cave Willett research postdoctoral fellow at Chicago Lying-in Hospital of the University of Chicago The appointment, supported through a grant of $100,000 by Mr Howard Willett Sr, president, Willett Motor Coach Co, Chicago, in honor of his wife, is one of the first made to initiate Chicago Lying-in Hospital's new type research program in the physiology of reproduction

Northwest Suburban Tuberculosis Clinic—A new tuberculosis outpatient and treatment clinic operated by the Suburban Cook County Tuberculosis Sanitar-

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Physicians are invited to send to this department items of news of general interest for example, those relating to society activities, new hospitals, education, and public health Programs should be received at least three weeks before the date of meeting ium District has opened in the new Northwest Suburban Clinic Building, 1430 North State Road, Arlington Heights The clinic will serve residents of the northwest area of Cook County and will meet every Tuesday from 10 a m to 12 noon It will continue in the Arlington Heights building until such time as a hospital is built in the northwest area when the District will provide outpatient care and x-rays through the hospital facility

LOUISIANA

Personal —The gold medal of the Buffalo (New York) Surgical Society was awarded in February to Dr Alton Ochsner, New Orleans, who at the same time made the 10th Roswell Park Lecture His subject was "Bronchogenic Cancer—Factors Which Influence Long-Term Survival"

Laboratory for Metabolic Research —The Urban Maes Laboratory for endocrine and metabolic research was recently established in New Orleans under the auspices of the Urban Maes Research Foundation and the joint sponsorship of the Louisiana State University and Tulane University schools of medicine and Touro Infirmary, New Orleans Temporary facilities will be established at the Louisiana State University School of Medicine, New Orleans, until a permanent laboratory is constructed at Touro Infirmary Dr Floyd R Skelton is director of the laboratory

MARYLAND

Dr Clark to Receive Passano Award —The board of directors of the Passano Foundation recently announced that William Mansfield Clark, Ph D , professor emeritus, department of biological chemistry, Johns Hopkins University School of Medicine, Baltimore, has been selected as the recipient of the $5,000 Passano Foundation Award for 1957 On June 5 a reception and dinner will be held at the Waldorf-Astoria Hotel to honor Dr Clark Dr David B Allman, incoming president of the American Medical Association, will be one of the speakers The award is made to Dr Clark in recognition of his distinguished career as investigator and teacher, and for his demonstration over the years of the importance of physical methods notably in the control of pH and of oxidation-reduction to the study of life processes

MICHIGAN

Personal —The first annual Chamberlain Lecture on cardiovascular roentgenology at the Temple University Medical Center, Philadelphia, was given recently by Dr Melvin M Figley, assistant professor of radiology, University of Michigan Medical School, Ann Arbor

Health Records —According to the 1956 vital statistics released by the Michigan Department of Health, six new health records were set by the state last year All-time highs were set in birth rate (27 4), total births (205,650) All-time lows were set in total death rate (8 5) and in death rate among infants under one year of age (24 6)

NEBRASKA

State Association Meets in Omaha —The 89th annual session of the Nebraska State Medical Association will be held May 13-16 at the Hotel Paxton, Omaha Dr Dwight H Murray, president of the American Medical Association, will speak on 'Idealism Is Not Old-Fashioned,' at the annual banquet May 15 Dr Gonzalo Obregon, assistant professor in otolaryngology, State University of Iowa College of Medicine, Iowa City, will speak on "Office Laryngoscopy,' and will present a movie on the technique of indirect laryngoscopy Topics by great speakers include

Cardiac Resuscitation, Robert M Hosler Cleveland
The Environment of the Premature Infant, William A Silverman, New York City
Hemorrhage in the Third and Fourth State of Labor, Frederick J Hofmeister, Milwaukee Wis
Modern Management of Congestive Heart Failure O Earle Gray, Chicago, Ill
Social Security Coverage for Physicians and the Keogh Jenkins *Bills, Ernest B Howard assistant secretary, the American Medical Association, Chicago*

Entertainment activities include a golf tournament, trap shoot, sportsman s dinner, bowling, and special ladies' program Information may be obtained from the Nebraska State Medical Association, 1315 Sharp Building, Lincoln 8

NEW YORK

Personal —Dr Hilary Koprowski, formerly assistant director of viral and rickettsial research, Lederle Laboratories, American Cyanamid Company, Pearl River, N Y , has been appointed director of the Wistar Institute, Philadelphia

Appoint Director of Medical Education —Dr Bernard Levinson, of Salt Lake City, has been appointed director of medical education, effective July 1, at the State University of New York College of Medicine, Syracuse Dr Levinson will also become instructor in medicine at the college succeeding Dr Edward J Heitzman, who will enter private practice and will remain on the faculty as clinical instructor

Research Training Grant —A $6,900 grant by the U S Public Health Service was made to Albany Medical College to establish a research training program in its physiology department Administered by Dr Matthew N Levy, associate professor of physiology, it supplements an $11,774 grant he received from the same agency last year for a study of peripheral resistance to blood flow

Muscular Dystrophy Grant —Dr Willet R Bowen, department of pediatrics, Wilfred W Westerfeld, Ph D , chairman, department of biochemistry, and Dr Charles W Linart, orthopedic surgeon, State University of New York College of Medicine, Syracuse, are the recipients of a $9,000 grant from the Muscular Dystrophy Associations of America for research in progressive muscular dystrophy

Research on the Psychiatric Interview —A research grant of $31,700 has been awarded to Hillside Hospital, Glen Oaks, Queens, N Y , by the Foundations

Fund for research in psychiatry The grant was given to Dr Joseph Jaffe, of the hospital's department of experimental psychiatry, for research in the nature of the psychiatric interview The research was begun in 1955 The grant will pay for work conducted in 1957 and 1958

Psychiatric Research Project at Sing Sing—Dr Samuel L Dunaif, instructor in psychiatry, Columbia University College of Physicians and Surgeons, New York City, has been appointed to carry out a joint psychiatric research project at Sing Sing prison for the state departments of mental hygiene and correction Serving on a part-time basis, he will set up a pilot study to delineate, wherever possible, the areas of research concerning the various types of offenses Some areas he will explore include (1) the problem of recidivism, (2) whether the newer drug therapies will be of any value in control of recidivism, and (3) whether the symptom-producing drugs have a different reaction in various types of offenders He also will follow cases in which shock therapy has already been given Dr Dunaif served as a resident research psychiatrist for two years and as a consultant research psychiatrist for one year on a previous study of convicted sex offenders at Sing Sing

New York City

Dr Hass Awarded Prize—Dr Julius Hass has been awarded the Umberto I" prize, under the auspices of the Orthopedic Instituto Rizzoli, Bologna, Italy, for his monograph on Congenital Dislocation of the Hip" The prize is an international award consisting of a gold medal and a diploma and is given every five years for the best work in the field of orthopedic surgery

Bernard Sutro Oppenheimer Lecture—Dr Dickinson W Richards, Lambert Professor of Medicine, Columbia University College of Physicians and Surgeons, and director of the First Medical (Columbia) Division Bellevue General Hospital, will deliver the first Dr Bernard Sutro Oppenheimer Lecture May 21 at 8 30 p m in Hosack Hall at the New York Academy of Medicine 2 E 103 St The title of Dr Richards lecture will be 'Some Problems in the Physiology of Dyspnea"

Personal—Dr Thomas M Rivers, New York City, formerly vice-president of the Rockefeller Institute for Medical Research, has been appointed medical director of the National Foundation for Infantile Paralysis He succeeds Dr Hart E Van Riper, New York City, who resigned to become medical director of Geigy Pharmaceuticals ——Dr Joseph M Pisani has resigned as assistant dean of the New York University College of Medicine in Brooklyn to become full-time medical director of Bankers Trust Company, New York City, effective April 1

Hospital Centennial—The 100th anniversary committee of Lenox Hill Hospital will plan and direct a four-day celebration May 10-13 to mark the hospital's century of service The celebration will highlight the advances made in medical science since the hospital was founded Open to the public will be a program of panel discussions by leading medical scientists of Lenox Hill's professional staff on current trends in medical progress and accomplishments Scientific exhibits and guided tours of the hospital will dramatize the extent of Lenox Hill's service to New York for the past 100 years

Appoint Dean at Cornell—The Cornell University board of trustees recently announced the appointment of Dr John E Deitrick as dean of the Cornell University Medical College in New York City Dr Deitrick has been Magee professor of medicine at Jefferson Medical College, Philadelphia, since 1952 He succeeds Dr E Hugh Luckey, who will be head of the college's department of medicine Dr Deitrick serves on the National Board of Medical Examiners and the internship review committee of the American Medical Association He is a director of the Philadelphia County Medical Society and a member of the Pennsylvania State Medical Society's Commission on Graduate Education, a fellow of the American College of Physicians, the New York Academy of Medicine, and the College of Physicians of Philadelphia

New Hospital in Queens—The 970 bed Elmhurst General Hospital, erected at a cost of 25 2 million dollars on an 8 5 acre triangular plot bounded by Broadway, 78th Street, 41st and Baxter avenues, began receiving patients March 18 The hospital consists of two eleven story buildings and a five-story building, all interconnected A photofluorography room for preadmission chest examination, chapels for the three major religious faiths available for the use of patients, a library, an auditorium, and extensive rehabilitation facilities are among the features A premature center has 18 bassinets The operating room suite has a tissue laboratory and its own x-ray facilities A control room for televised closed-circuit medical education programs and a psychiatric service of 154 beds are provided

NORTH CAROLINA

Personal—Dr Warner Lee Wells, assistant professor of surgery, University of North Carolina School of Medicine, was recently named the winner of the 1957 O Max Gardner Award The award is given each year "to that member of the faculty of the Consolidated University of North Carolina, who, during the current scholastic year, has made the greatest contribution to the welfare of the human race"

Psychiatric Nursing—A $31,874 grant for research in psychiatric nursing has been made to Duke University, Durham, by the National Institute of Mental Health The two-year grant will permit continuation and expansion of a project headed by Dr Robert H Dovenmuehle, chief of inpatient service in the psychiatric department The project is centered around defining the nursing activities which will contribute to effective psychiatric care Also, the Duke researchers will study the characteristics of the nurse who can best do this type of work

OHIO

Personal—Margaret Mead, Ph D , New York City, anthropologist, has been added to the faculty at the University of Cincinnati College of Medicine as part-time visiting professor of anthropology Dr Mead will work with Dr Maurice Levine, professor of psychiatry and director of the university department

Tuberculosis Detention Facility—A 19 bed facility for the detention of tuberculosis patients who are declared a 'public health menace' in probate courts will open in the spring or early summer at Ohio Tuberculosis Hospital, Ohio State University, Columbus The faculty will provide security and treatment for some of the flagrant offenders against public health

Paul Lewis Award—G Robert Greenberg, Ph D , associate professor of biochemistry, Western Reserve University School of Medicine, Cleveland, received the $1,000 Paul-Lewis Laboratories Award in Enzyme Chemistry at Miami, Fla , April 8, during the 131st national meeting of the American Chemical Society His award address was on Biosynthesis of Purines The award was established in 1946 by the Paul-Lewis Laboratories, Inc , Milwaukee, Wis , to stimulate research in the field of enzymes

OKLAHOMA

Establish Lhevine Memorial—Friends of the late Dr Morris B Lhevine, Tulsa radiologist who died last year, have created an annual scholarship in his memory to Technion, the Israel Institute of Technology, it was announced in Haifa recently Dr Lhevine in 1951 visited Israel and consulted with national leaders on the development of technical education

Expand Program at Children's Center—Children's Medical Center, of Tulsa, was named last month as headquarters for a regional training program for personnel to work with mentally retarded children Financed by a grant of $55,000 from congressional appropriations, the program will utilize 11 instructors to train personnel in advanced techniques for handling and developing the mentally retarded child It will be set up on a three-year basis and will utilize the physical facilities of the center, the Tulsa Child Guidance Clinic, and Sunnyside School Dr Paul C Benton, medical director and administrator of the center, will serve as director and psychiatric consultant for the new program

PENNSYLVANIA

Training Program in Cancer—The University of Pittsburgh Graduate School of Public Health announces a new program of advanced study and field training for students interested in cancer and other chronic diseases This is the first training program of its kind to be supported by the National Cancer Institute and will require an annual budget of about $100,000 for five years The grant from the institute will be matched in equal amounts by funds from the school Inquiries concerning admission to the program and fellowships should be addressed to the Dean, Graduate School of Public Health, University of Pittsburgh, Pittsburgh 13

Philadelphia

Temple Alumni Reunion—The Class of 1937, Temple University School of Medicine, Philadelphia, will have its 20th year reunion at the Warwick Hotel June 8 Dean William N Parkinson and 12 former professors will participate in the activities and program For information write Dr Harry Shubin, Chairman, 6601 N 21st St , Philadelphia 38

Exhibit Civil Defense Hospital—The Federal Civil Defense Administration's 200-bed emergency hospital unit was exhibited in Philadelphia April 1 by the Philadelphia Civil Defense Council Dr Isidor S Ravdin officially opened the hospital unit A highly mobile, self-sufficient disaster unit, the hospital has 288 different types of equipment, including a 1500-gallon nylon rubber collapsible tank to provide its own water supply, five folding operating tables, and a portable x-ray unit, complete with its own generator and transformer, capable of turning out 60-second x-rays This 200-bed unit is intended to provide early treatment of seriously sick and injured casualties as close as possible to the stricken area in times of disaster or attack The hospital is also expected to be an invaluable peacetime training aid for all civil defense medical, nursing, and applied services

SOUTH CAROLINA

Eye Bank Group Organized—The South Carolina Eye Bank, Inc , a clearing house for eye donations, held an organizational meeting recently in Columbia Organization of the bank was made possible by an act of the South Carolina General Assembly last year Clearing house for the organization will be in Columbia The bank and laboratory will be maintained at the Medical College of South Carolina Dr Clay W Evatt of Charleston was named medical advisor to the organization The organization is to establish and operate an eye bank and corneal eye clinic to be organized and operated exclusively for obtaining eyes and corneal transplants

WEST VIRGINIA

Appoint Chief of Gerontological Service—Dr Thomas H McGavack, professor of clinical medicine, resigned from New York Medical College, Flower and Fifth Avenue Hospitals, New York City, in order to accept appointment as chief, gerontological service, Veteran s Administration Center, Martinsburg He has been given professorial rank at George Washington University School of Medicine, Washington, D C , where he will conduct conferences on endocrine, metabolic, and gerontological subjects

Personal—Dr Hiram W Davis, Huntington, who has been superintendent of Huntington State Hospital for six years, has resigned to become state commissioner of mental hygiene and hospitals in the state of Virginia, succeeding Dr Joseph E Barrett, who resigned to return to the post of superintendent of Eastern State Hospital at Williamsburg Dr Davis is chairman of the section on neurology, neurosurgery, and psychiatry, West Virginia State Medical Association, and is a member of the committee on mental hygiene

WISCONSIN

Conference on Work and the Heart—A medical conference on Work and the Heart" will be conducted at Marquette University, Milwaukee, May 15-18 The participants will include some 60 of medical authorities and specialists from four foreign countries Sponsored by the Marquette University School of Medicine and the Wisconsin Heart Association, the conference will be divided into five concurrent panels on basic physiology, clinical physiology, pathology, work classification, and workmen s compensation Foreign participants include Drs H H Weber, of Heidelberg, Germany, Matti J Karonen, of Helsinki, Finland, A Morgan Jones, of Cheshire, England, and Gunnar Birock, of Malmo, Sweden

University News—Dr Herwig Hamperl, director of the Institute of Pathology, University of Bonn, Germany has been designated Carl Schurz Professor of Pathology, University of Wisconsin Medical School, Madison, for the second semester of the academic year 1957 —The University of Wisconsin Medical School will dedicate the Bardeen Medical Laboratories May 17 This unit, named for Dr Charles Bardeen first dean of the Wisconsin Medical School will afford space for the department of anatomy and physiological chemistry The entire top floor will contain animal quarters The dedication will coincide with Alumni Day and speakers will include Drs Eugene L Opie emeritus professor of pathology, Cornell University Medical College, New York City, George Corner, professor emeritus of embryology, Johns Hopkins University School of Medicine, Baltimore, and Willard C Rappleye, dean, Columbia University College of Physicians and Surgeons, New York City

GENERAL

Health Meeting in Long Beach—The 24th annual meeting of the Western Branch, American Public Health Association, will be held in Long Beach, Calif, May 29-June 1 at the Lafayette Hotel Special sessions on epidemiology, public health education, sanitation, laboratory, nutrition, and industrial hygiene will be held For information write Dr Irving D Litwack, Department of Public Health, City of Long Beach, Calif

Education and Public Health Grant—For the support of its field services in medical education and public health in 1957, The Rockefeller Foundation has appropriated $371,625, an increase of more than $50,000 over the amount appropriated for 1956 For the promotion of medical education and public health throughout the world, the foundation maintains regional offices in Brazil, Chile, and India, and the opening of a new Middle Eastern office is planned for 1957 if political conditions permit

Meeting of Medical Technologists—The silver anniversary convention of the American Society of Medical Technologists will be held at the Palmer House in Chicago, June 23-29, at which study groups and workshops will be presented The study groups will consist mainly of lectures and demonstrations emphasizing individual participation in chemical protein industry, cytology and histology, and tissue culture The workshops will be held at various hospitals and schools in the Chicago area on hematology, mycology, and photography (gross photography and photomicrography) The executive office of the American Society of Medical Technologists is at 25 Hermann Professional Building, Houston 25, Texas

Muscular Dystrophy Clinic—A muscular dystrophy clinic has been opened at the University of Texas School of Medicine, Galveston, as part of a $250,000 research project being sponsored jointly by the school and National Muscular Dystrophy Research Foundation, Inc, Liberty, Texas The Medical Branch will take two muscular dystrophy patients a week, so that intensive studies may be carried out Later more patients will be admitted Besides the clinical work, the project includes experiments with a new strain of white mice which has a disease similar, and perhaps identical, to muscular dystrophy Eleven systematic studies are being proposed for other methods of investigation and research

Blood Transfusion Survey—Dr Frank E Wilson, executive vice-president of Joint Blood Council, Washington, D C, has announced the launching of a nation-wide survey of blood transfusion services The two-year study, made possible by a U S Public Health Service grant of $50,000 will collect, analyze, and disseminate information Objectives include preparation of guidelines and standards for accreditation of blood banks, development of a glossary of terms and solution of numerous nomenclature problems, inventory of research in blood and blood derivatives, and the assembling and analysis of needed data appertaining to these objectives

Woods Schools Spring Conference—Vocational training and rehabilitation of the mentally and physically handicapped will be the concern of national leaders in the field at the Spring Conference of the Woods Schools, Langhorne, Pa, to be held May 10-11 in the School of Law, Northwestern University, Chicago Keynote speaker will be Samuel A Kirk, Ph D, director of the Institute for Research on Exceptional Children, University of Illinois, Urbana Dr Frederic A Gibbs, professor of neurology at the College of Medicine, University of Illinois, Chicago, will speak on 'The Need for Medical Evaluation in Vocational Guidance and Training"

Announce Fellowship in Proctology—The International Academy of Proctology announces the establishment of a teaching and research fellowship in proctology under the direction of Dr Marcus D Kogel, dean of the Albert Einstein College of Medicine, New York City The academy has voted a $1,000 annual grant for each of three years to assist in the development of research and educational projects in proctology at the university One of the projects developed under this grant has been a tissue slide 'library for teaching purposes, under the direction of Dr Alfred A Angrist, clinical professor of pathology, New York Medical College, Flower and Fifth Avenue Hospitals, New York City For information write International Academy of Proctology, 147-41 Sanford Ave, Flushing, N Y

Radium Society Meets in Quebec —The 39th annual meeting of the American Radium Society will be held at the Chateau Frontenac, Quebec, Canada, May 29-June 1 The Gordon E Richards Memorial Lecture, 'Newer Knowledge of the Structure of Normal and Malignant Cells Obtained by Electron Microscopy,' will be given by Dr Arthur W Ham Toronto, Ontario The Janeway Lecture, 'Contributions of Biology to Radiation,' will be given by Dr Simeon T Cantril, Seattle A round-table conference, 'Treatment of Cancer of the Lung,' will be moderated by Douglas Quick M B, New York City A symposium on 'Rotation Therapy' will include a round table discussion moderated by Dr Robert Robbins, Philadelphia The annual banquet will be held May 31, 7 30 p m For information write Theodore R Miller, 139 E 36th St, New York 16

New Journal on Mental Deficiency —The first number of the *Journal of Mental Deficiency*, sponsored by the National Society for Mentally Handicapped Children, Ltd, will appear this spring The journal is administered by an advisory committee under the chairmanship of Prof Lionel S Penrose, with Dr Barry W Richards as editor Articles on all aspects of mental deficiency will be included, but there will be a medical bias and a high proportion of available space will be allotted to papers reporting the results of original research The journal will appear twice a year in the first instance and will become quarterly should this be justified by the quantity and quality of subject matter submitted The journal will cost $1 50 Inquiries and contributions should be sent to Dr B W Richards, St Lawrence's Hospital, Caterham Surrey, England

Cardiologists Meet in Washington —The sixth annual meeting of the American College of Cardiology will be held at the Hotel Willard, Washington, D C, May 15-18 Two seminars, 'Electrocardiography and Vectorcardiography," and "Congenital Heart Disease,' and symposiums on pericarditis with effusion and constrictive pericarditis, diagnostic methods (two parts), and open heart surgery are scheduled The Franz Groedel Lecture, Humanities in Medicine,' will be given by Dr Henry Borsook, professor of biochemistry, California Institute of Technology, Pasadena, Calif The annual convention guest lecture will feature Dr Frank B Berry, assistant secretary of defense for health and medicine, and Dr Ignacio Chavez, director, National Institute of Cardiology, Mexico City, Mex, who will speak on "Evolution of Diagnosis in Cardiology in the Last 30 Years' Panel discussions will follow presentation of formal papers at each session "Fireside Conferences' are scheduled for May 16, 10 p m Tours of Washington and trips to Alexandria and Mt Vernon are planned The annual banquet will be held May 17, 7 45 p m ($10 a person) A specially arranged closed T V broadcast on cardiology originating from the National Heart Institute is scheduled for May 15

Announce Allergy Fellowships —The scientific and educational council of the American Foundation for Allergic Diseases has announced a research and training program to encourage medical education in allergic diseases Four classes of fellowships are offered

1 Predoctoral Fellowships—Two predoctoral fellowships of $2500 have been awarded for 1956 1957 to Louis G Hoffman and Jack Litwin both working in microbiology at Johns Hopkins University and the University of Chicago respectively
2 Part-Time Fellowships—Forest E Brown, Harvard University Boston working in immunology has been awarded $1500
3 Postdoctoral Fellowships—Three such fellowships in research and clinical allergy have been established at Johns Hopkins University, Baltimore Pennsylvania University Philadelphia and Washington University St Louis They carry stipends of $4500 for the first year $4750 for the second year and laboratory and travel expense of $750 for the two year period Applications for these are now available from the research directors at the three medical schools The deadline is May 10 Funds were made available by a grant from Mr John D Rockefeller Jr
4 Summer or Quarterly Predoctoral Fellowships—Twenty quarterly or summer fellowships are available for students who have completed two years of medical school training They are for a minimum of eight weeks and the stipend is $500 Deans of all approved medical schools have been invited to nominate candidates by April 30 A grant from the Gustavus and Louise Pfeiffer Foundation made these fellowships available

Society News —Officers of the **Central Society for Clinical Research** include Dr Kenneth Kohlstaedt, Indianapolis, president, Dr Thornton Scott, Lexington, Ky, vice-president, and Dr William S Jordan Jr, secretary-treasurer (Western Reserve University, 2109 Adelbert Rd, Cleveland 6) —The recently elected officers of the **Association for Research in Nervous and Mental Disease** include president, Dr Francis J Braceland, Hartford, Conn, first vice-president, Dr Paul Hoch, second vice-president, Dr Carl Pfeiffer, secretary-treasurer, Dr Rollo J Masselink, New York City, and assistant secretary, Dr Lawrence C Kolb, New York City The 37th annual meeting will be held at the Hotel Roosevelt in New York City, Dec 13-14 —The **National Multiple Sclerosis Society** has moved from 270 Park Ave, New York 17, to new quarters at 257 Fourth Ave (phone ORegon 4-4100) The society, which was established in October, 1946, has nearly 100 chapters and branches from coast to coast It is supporting major scientific research into the cause and cure of multiple sclerosis In 1956 the society allocated $270,805 for research, and more than $450,000 is already earmarked for research support this year —The **American Heart Association** announces that the deadline for submission of abstracts of papers for presentation at its scientific sessions (Oct 25-28, Hotel Sherman, Chicago) is June 15 Papers intended for presentation must be based on original investigations in, or related to, the cardiovascular field Abstracts must be submitted in triplicate on forms obtainable from the Medical Director of the Association, 44 E 23rd St, New York 10, N Y

Abstracts should not exceed 300 words and should contain in summary form the results obtained and the conclusions reached —**The American Public Health Association** recently elected the following officers president, John W Knutson, D D S, Washington, D C president-elect, Roy J Morton, C E, Oak Ridge, Tenn, chairman of the executive board, Lawrence J Peterson, M S P H, Boise, Idaho, and treasurer, Charles Glen King, Ph D, New York City Dr Reginald M Atwater, New York City, is executive secretary The next annual meeting will be held in the Cleveland Public Auditorium, Nov 11-15 —At the annual meeting of the **American Academy of General Practice**, the congress of delegates adopted an amendment which now requires a one-year rotating internship as an absolute minimum requirement for membership The academy also named Dr Holland T Jackson, Fort Worth, Texas, president-elect Dr Malcom E Phelps, El Reno, Okla, was inducted as president —The officers of the **American Academy for Cerebral Palsy** for 1957 are Dr Nicholson J Eastman Johns Hopkins Hospital, Baltimore, president, Dr William T Green, Harvard Medical School, Boston president-elect Dr Raymond R Rembolt, State University of Iowa College of Medicine, Iowa City Iowa secretary-treasurer

CANADA

Society News —At the 20th annual meeting of the Canadian Association of Radiologists held in Montreal in January, the following officers were elected for the year 1957 Drs Jean L Bouchard, Montreal, president, Andrew R McGee, Toronto, vice-president, Guillaume Gill Montreal, honorary secretary-treasurer, Robert G Fraser Montreal, associate honorary secretary-treasurer

FOREIGN

Congress of Group Psychotherapy —The Second International Congress of Group Psychotherapy will be in Zurich, Switzerland, Aug 29-31, preceding the Second International Congress of Psychiatry The president of the congress is Dr Jacob L Moreno, New York City The program chairman, Dr Serge Lebovici, (Paris) France For information write Wellman J Warner, Ph D, 812 Stuart Ave, Mamaroneck N Y

Pacific Science Congress —The ninth Pacific Science Congress will be held in Bangkok, Thailand, Nov 18-Dec 9, under the auspices of the government of Thailand and the Science Society of Thailand The Academy-Research Council is the representative of the United States in the Pacific Science Association, which is responsible for the Pacific Science Congresses Scientists and representatives of institutions in the United States are invited to participate A symposium on humid tropics research with special reference to climate, vegetation, and land utilization in the humid tropics is planned General symposiums are also being planned on the following subjects geology and geophysics, meteorology, oceanography, zoology, entomology, botany, conservation, museums, crop improvement, animal improvement, chemistry in the development of natural resources, public health and medical sciences, anthropology and social sciences, and nutrition Information may be obtained from the Pacific Science Office, Academy-Research Council, 2101 Constitution Ave, Washington 25, D C

EXAMINATIONS AND LICENSURE

American Board of Anesthesiology *Part I* Various locations, July 19 Final date for filing application was Jan 19 American Board of Anesthesiology *Oral* Washington, Oct 28-Nov 1 Sec, Dr Curtiss B Hickcox, 80 Seymour St, Hartford 15

American Board of Dermatology *Written* Several cities, June 27 *Oral* Baltimore, Oct 11-13 Final date for filing application was April 1 Sec, Dr Beatrice Maher Kesten, One Haven Ave, New York 32

American Board of Internal Medicine *Written* Oct 21 *Oral* Chicago, May 27-29, Los Angeles, Sept 11-14 Final date for filing applications was Feb 1 Exec Sec, Dr W A Werrell, 1 West Main St, Madison 3, Wis

American Board of Neurological Surgery Examination given twice annually, in the spring and fall In order to be eligible a candidate must have his application filed at least six months before the examination time Sec, Dr Leonard T Furlow, Washington University School of Medicine, St Louis 10

American Board of Obstetrics and Gynecology *Part II* Chicago, May 15-25 Final date for filing application was Feb 1 Applications for certification, new and reopened, for the 1958 Part I examinations are now being accepted Deadline for receipt of applications is September 1 Sec, Dr Robert L Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio

American Board of Ophthalmology *Oral* New York, May 23-27, Chicago, Oct 7-11 *Written* January 1958 Final date for filing application is July 1 Sec, Dr Merrill J King, Box 236, Cape Cottage Branch, Portland 9, Maine

American Board of Orthopaedic Surgery *Part II* New York City, Jan 29-31, 1958 Final date for filing application is August 15 Sec, Dr Sam W Banks, 116 South Michigan Avenue, Chicago 3

American Board of Otolaryngology Chicago, Oct 7-11 Final date for filing application was in April Sec, Dr Dean M Lierle, University Hospitals, Iowa City

American Board of Physical Medicine and Rehabilitation *Parts I and II* New York City June 8-9 Final date for filing application was March 1 Sec, Dr Earl C Elkins, 200 First St, S W, Rochester Minn

American Board of Preventive Medicine *Aviation Medicine* Denver, May 9-11 Sec, Dr Thomas F Whayne, 615 North Wolfe St, Baltimore

American Board of Proctology *Oral and Written Parts I and II* September Sec, Dr Stuart T Ross, 520 Franklin Ave, Garden City, N Y

American Board of Psychiatry and Neurology New York, Dec 16-17 Sec Dr David A Boyd, Jr, 102-110 Second Ave, S W, Rochester, Minn

American Board of Radiology Washington, Sept 23-28 Final date for filing application is June 1 Within the near future a special examination for certification in Nuclear Medicine will be offered to diplomates in Radiology and Therapeutic Radiology Sec, Kahler Hotel Bldg, Rochester, Minn

American Board of Surgery *Part II* New York, June 10-11 Sec, Dr John B Flick, 225 S 15th St, Philadelphia 2

American Board of Urology *Written examination* Various cities throughout the country *Pathology and Oral Clinical* February 1958 Location not decided Exec Secretary, Mrs Ruby L Griggs, 30 Westwood Road, Minneapolis 16

Board of Thoracic Surgery *Written* Various centers throughout the country, September 1957, and the closing date for registration is July 1, 1957 Sec, Dr William H Tuttle, 1151 Taylor Ave, Detroit 2

GOVERNMENT SERVICES

AIR FORCE

School of Aviation Medicine—Construction has begun on the new 9-million dollar installation for the School of Aviation Medicine on the outskirts of San Antonio, Texas Civic leaders and Air Force officials will take part in a formal ground-breaking ceremony on May 10

The arrival of the first construction party climaxed more than a decade of planning by the Air Force The projected center, many times delayed, was first proposed officially in August, 1946 It was approved by the Congress, and funds for construction appropriated in July, 1952 The four units now under construction are the research institute, academic building, flight medicine laboratory, and shops In the research institute three floors will be devoted to the aeromedical library and laboratories In the one-story academic building there will be classrooms that will accommodate 700 students and an auditorium with a seating capacity of 400 The shops, which will fabricate instruments for research, will contain electronic equipment to analyze statistical data and a medical photographic laboratory

In the altitude building there will be atmospheric pressure chambers costing 2 million dollars—some for research, others to familiarize medical officers with conditions that may affect flyers in the higher altitudes The hospital originally planned has been omitted from the present construction, for reasons of economy Instead, the new 1,000 bed hospital at nearby Lackland Air Force Base will provide support to the school A closed-circuit television system, with a link to the Lackland hospital, will show to student officers in the school's own classrooms the treatment given by flight surgeons at the hospital

Now occupying more than 40 buildings at Randolph Air Force Base, mostly temporary structures built during World War II, the School of Aviation Medicine will have in the new plant at Brooks a most advanced institution for medical teaching and research

Air Force Reserve Plans Medical Units—The Air Force Reserve has announced plans for the activation in April of 10 medical units with facilities for 6,000 bed patients The medical units will be located at CONAC's Air Reserve Flying and Training Centers throughout the country

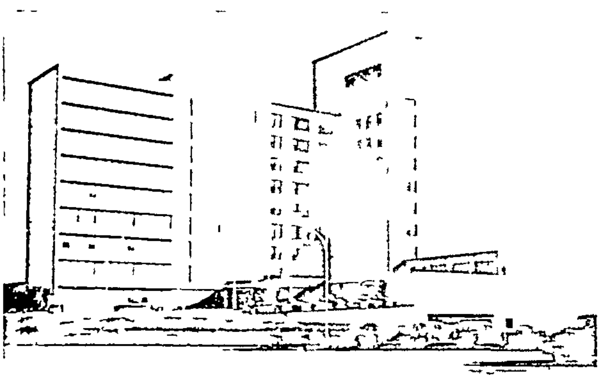
The new medical units will be manned by regular Air Force personnel and air reservists not on active duty from center location areas CONAC's Air Reserve centers will supervise the training of reservists assigned to the medical units Air Reserve personnel so assigned will be authorized the usual 48 training periods and 15-day active duty tours Training facilities for reserve medical units will be provided through joint use of CONAC's Air Reserve Centers or other U S Air Force or Defense Department installations

Eligibility requirements stipulate that individuals must be physically qualified for active military service Air Reserve officer personnel must meet age-in-grade requirements, however, this does not apply to reserve airmen Ready reservists desiring to be assigned to the medical units must have an AA availability classification code

ARMY

New Army Hospital at Fort Knox—The new $8,500,000 Merritte W Ireland Hospital at the Army Armor Center, Fort Knox, Ky, officially opened its doors for the first time April 1, when dedication ceremonies were held The guest speaker was the surgeon general of the Army, Major Gen Silas B Hays, who was introduced by the Fort Knox commander, Major Gen John L Ryan Jr The hospital was named after Major Gen Merritte Weber Ireland, who was surgeon general of the Army from 1918 to 1931 and a chief spokesman for Army medicine until his death in 1952

Among those present at the ceremonies were Mrs Merritte Ireland, Dr Paul Ireland, a son now practicing medicine in Ann Arbor, Mich, and grandsons, Capt Merritte W Ireland, a student at the U S Army Armor School, and Capt Paul M Ireland Jr, now stationed at Fort Leavenworth, Kan



The Merritte W Ireland Hospital

The Merritte W Ireland Army Hospital is a nine-story, 500 bed structure, planned so that two extra wings can be added, expanding the bed capacity to 1,000 It houses the latest hospital equipment and facilities About 25% of the hospital is air-conditioned Located outside the hospital is a parking lot with space for 535 cars

Army Intern Training Group—Army hospitals will welcome 164 graduates from 71 approved medical schools as interns for the year beginning July 1 This is the largest number of medical interns to be admitted at one time by the Army Medical Service since the establishment of such training These physicians will be commissioned as first lieutenants in the Medical Corps on entering the service, and, at the close of the one-year internship they will become captains if they remain in the service

The increase for 1957 is accounted for by the extension of intern training to the Army Hospital at Fort Benning, Ga It is planned to further expand these openings during the next few years through the addition of more hospitals to the program Seventy-three per cent, or 121, of the interns are married, 33 having one child, 21 having two children, 4 having three children, and 2 having four children The remaining 60 married interns have none

Hospitals that participate in the program are those approved for internship training by the Council on Medical Education and Hospitals of the American Medical Association

Three New Generals—Three new brigadier generals were added to the Army Medical Corps on March 25 1957 by the U S Senate They are Roger G Prentiss Jr surgeon at headquarters, 1st U S Army, Governors Island, New York, Paul S Franchner, commandant of Letterman Army Hospital at San Francisco, and Joseph H McNinch surgeon headquarters, U S Forces Far East

NAVY

Two Hundred Interns Selected for Training at Naval Hospitals—A total of 200 students who have graduated following the fall semester or who will be graduated at the end of the spring semester from medical schools throughout the United States and Canada have been selected to serve their internships at naval hospitals under the Navy s Graduate Medical Training Program Those selected will be appointed lieutenants (junior grade) in the Medical Corps and Naval Reserve and will be ordered to active military service The naval hospitals and the number of interns to be assigned are as follows

Chelsea Mass	12	Pensacola Fla	6
Newport R I	6	Great Lakes, Ill	12
St Albans L I N Y	20	Bremerton Wash	6
Philadelphia	18	Oakland Calif	20
Bethesda Md	20	Corona Calif	10
Portsmouth Va	20	Camp Pendleton Calif	10
Charleston S C	6	San Diego Calif	28
Jacksonville Fla	6		

Lectures at the Naval Research Institute—Dr Gerhard Domagk professor of pathology, University of Munster Germany lectured at the Naval Medical Research Institute Bethesda Md March 26 on the present status of chemotherapy of tuberculosis Dr Domagk was in the United States on invitation of the New York Academy of Sciences, where he lectured on Twenty-five Years of Sulfonamide Therapy' Dr Domagk won the Nobel Prize in 1939 for his work on the action of sulfonamides on acute bacterial infections——Dr Marshall Brucer chairman, medical division, Oak Ridge Institute of Nuclear Studies in Tennessee, spoke March 7 on Clinical Radiation Dosimetry' at the Naval Medical Center in Bethesda

PUBLIC HEALTH SERVICE

Cooperative Research on Apoplexy—A nationwide cooperative research attack against cerebral vascular disease was announced April 2 by the surgeon general Ten medical research centers in nine states have already joined in the program, and it is expected that many more will ultimately participate, the surgeon general said The program, which is expected to run five or six years, is under the auspices of the National Institute of Neurological Diseases and Blindness, of which Dr Pearce Bailey is director

The new cerebral vascular research program was made possible by institute grants totaling $172,000 to the participating organizations The grants were recommended by the National Advisory Neurological Diseases and Blindness Council earlier this month The cooperative program is supplemented by 29 current individual projects directed to research on various aspects of cerebral vascular disease and supported by institute grants totaling about $250,000

These investigations will make possible the study of many patients who either have suffered a stroke or who show clinical signs indicating that a stroke might be coming on The results, it is said, are expected to shed new light on the nature and causes of strokes and to open the way to more effective treatment methods Another aim of the program is to make possible the more accurate selection of stroke patients most likely to benefit from surgical or nonsurgical therapies Data collected will be collated and evaluated at the University of Iowa, Iowa City, one of the cooperating institutions

Appoint Advisory Committee on Medical Practice—Surgeon General Leroy E Burney has announced the appointment of a committee of physicians to advise him on Public Health Service activities which are related to the practice of medicine The first meeting of the new Advisory Committee on Medical Practice Relations was held on April 4-5 in Washington, D C

We have many groups who advise us on research and disease control programs," Dr Burney said With the growth of medical and related research, it is increasingly important that we work with private physicians as well as with health agencies, to help apply the new knowledge promptly and effectively" Members of the advisory committee are Drs Stuart Adler, Albuquerque, N Mex , C Byron Blaisdell, Asbury Park, N J , Hugh H Hussey, Washington, D C , W L Potteus, Franklin, Ind , Julian P Price, Florence, S C , Stanley R Truman, Oakland, Calif , and William B Walsh, Washington, D C

More Grants for Research Facilities—The Public Health Service announced on March 30 the approval of 35 grants totaling $3,974,943 to help 27 research institutions in 18 states build additional facilities for research in cancer, heart disease, mental, and other major illnesses The grants were approved by the surgeon general on recommendation of the National Advisory Council on Health Research Facilities

The council, which met March 18-20, reviewed 165 applications amounting to about $66,384,500 Applications for grants will again be considered by the council May 27-29

Congress last year authorized 30 million dollars in grants a year for three years to research institutions on an equal matching basis for the construction and extension of research facilities The law also established the Health Research Facilities Council, which now has approved 109 grants totaling approximately 30 million dollars

DEATHS

Gomori George ⊕ Palo Alto Calif , born in Budapest, Hungary, July 16, 1901, Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása Budapest, Hungary, 1928, specialist certified by the American Board of Pathology, member of the Illinois State Medical Society, College of American Pathologists, American Society for Experimental Pathology and the American Society for Clinical Pathologists which in 1955 presented him with the annual Ward Burdick Award for his contribution to the subject of histochemistry, served as president of the American Histochemical Society, formerly professor of medicine at the University of Chicago The School of Medicine, served on the staff of the Albert Merritt Billings Hospital in Chicago served on the board of editors of the *American Journal of Clinical Pathology* consultant to the Armed Forces Institute of Pathology, in 1941 coexhibitor with Dr Charles Huggins of Chicago, at the meeting of the American Medical Association and received a certificate of merit for an exhibit illustrating phosphatases and carcinoma of the prostate gland, died Feb 28, aged 52

McMurray, Carl Seifried ⊕ Nashville Tenn , born July 25, 1896 Vanderbilt University School of Medicine, Nashville, Tenn , 1917, assistant professor of clinical gynecology at his alma mater, where in 1918 he joined the faculty as assistant in surgery subsequently serving as instructor in surgery and instructor in clinical gynecology, professor of gynecology at the Meharry Medical College, member of the Southeastern Surgical Congress, Nashville Academy of Medicine, of which he was past president, and the Endocrine Society, past president of the Nashville Surgical Society, member, board of directors Tennessee Division, American Cancer Society, fellow of the American College of Surgeons, member of the Selective Service Board of Appeals, Middle Tennessee Judicial District since 1955, member of the staff and chairman of the tumor clinic, Nashville General Hospital, member and formerly chief of staff, Mid-State Baptist Hospital, on the staff of St Thomas Hospital, where he died Jan 18, aged 60, of rheumatic heart disease stenosis and calcification of aortic valve and pulmonary edema

Lamb, Frederick Howe ⊕ Davenport, Iowa, born in Fredonia, Pa , Sept 11, 1888, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1914, a founder, from 1936 to 1945 vice-president, and for many years an examiner of the American Board of Pathology, past president of the Iowa Clinical Pathological Society and Scott County Medical Society, a founding fellow and past president of the American Society of Clinical Pathologists, in 1956 received a scroll of recognition from that organization for originating the 'slide seminars," a high point in the annual meeting of that organization, founding fellow and past president of the College of American Pathologists, a director of the Davenport Bank and Trust Company, director of the clinical and pathological laboratories at Moline (Ill) Public Hospital, St Anthony's Hospital in Rock Island, Ill , and the Mercy Hospital, director of the clinical and pathological laboratories at St Luke s Hospital, where he was past president of the staff, and where he died Jan 25, aged 68, of cerebral hemorrhage

Hamilton, Joseph Gilbert, San Francisco, born in Waverley, Mass , Nov 11, 1907, University of California School of Medicine, San Francisco, 1936, research professor of experimental medicine and radiology at his alma mater, where he was director of the Crocker Radiation Laboratory, a member of numerous honorary medical societies, among them the American Physical Society, the Society for Experimental Biology and Medicine, American Society for Clinical Investigation, Sigma Xi, Tau Beta Pi, and Alpha Chi Sigma, medical consultant to the Atomic Energy Commission s division of biology and medicine and a member of the Atomic Energy Commission's committees on radioactive isotopes and the human application of radioactive materials, member of the National Research Council, chairman of the radiobiology study section of the National Institute of Health and a consultant to the Army and Navy, died in the Children s Hospital Feb 18 aged 49, of leukemia

Laage, Herbert August ⊕ New York City, born in Niendorf, Germany, May 31, 1907, Long Island College of Medicine, Brooklyn, 1932, clinical assistant professor of orthopedic surgery at his alma mater, now known as the State University of New York College of Medicine, specialist certified by the American Board of Orthopaedic Surgery, member of the American Academy of Orthopaedic Surgeons and the Industrial Medical Association, fellow of the International College of Surgeons and the American College of Surgeons, president of the medical staff at the Misericordia Hospital, where he was chief, department of orthopedics, and outpatient department, on the staffs of the Long Island College Hospital, Brooklyn, Eastern Long Island Hospital in Greenport, Central Suffolk Hospital, Riverhead, and the Good Samaritan Hospital in Suffern, died Feb 17, aged 49, of heart disease

Milch, Eugene Chandler ⊕ New York City, born in New York City, Aug 6, 1902, University of Virginia Department of Medicine, Charlottesville, 1927, specialist certified by the American Board of Psychiatry and Neurology, member of the American Psychoanalytic Association and the American Psychiatric Association, formerly instructor in neurology at the University and Bellevue Hospital Medical College, served on the faculty of Columbia University College of Physicians and Surgeons, lecturer in psychiatry at the State University of New York College of Medicine, Brooklyn,

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⊕ Indicates Member of the American Medical Association

veteran of World War II, served on the staffs of the Mount Sinai and Beth Moses hospitals, from 1935 to 1940 assistant clinical psychiatrist of the New York State Psychiatric Institute died Jan 8, aged 54, of cancer

Barer, Charles Gregory Bronxville N Y born in Iowa City, Aug 11, 1904, State University of Iowa College of Medicine, Iowa City, 1928, specialist certified by the American Board of Ophthalmology, member of the Medical Society of the State of New York, veteran of World War II, served on the faculty of Columbia University College of Physicians and Surgeons in New York City and at his alma mater, on the staffs of the Institute of Ophthalmology of Presbyterian Hospital, Columbia Presbyterian Medical Center, and consultant in opthalmology at the Veterans Administration Hospital in New York City, staff member of the Lawrence Hospital, deputy fire chief, died Feb 8, aged 52, of ruptured dilated aorta

Kilbourne, Burton Kane * Hardin, Mont , born in Minneapolis Kan May 21, 1879, Kansas Medical College, Medical Department of Washburn College, Topeka 1904, formerly associated with the Kansas State Board of Health, a full-time city health officer in Fargo, N D , and epidemiologist of the Montana State Board of Health, served as state health officer and consultant for the state health department resigned in December, 1956 as full-time district health officer of Big Horn and Rosebud counties, served as secretary of the Montana Public Health Association, died in St Luke's Hospital Fargo, N D , Jan 20, aged 77, of cancer

McLellan, Philip Garretson * Hartford, Conn born in Caribou, Maine, Feb 28, 1900, Harvard Medical School, Boston, 1925, certified by the National Board of Medical Examiners, specialist certified by the American Board of Surgery, fellow of the American College of Surgeons, veteran of World War II, on the staff of the Hartford Hospital, consultant, Manchester (Conn) Hospital, New Britain (Conn) General Hospital, Institute of Living, Hartford, Windham Community Hospital, Willimantic, State of Connecticut Veterans Hospital, Rocky Hill, and the Veterans Administration Home and Hospital in Newington, died Jan 22, aged 56

Budreski, Alphonse Frank * Brockton, Mass , born in Brockton Feb 28, 1895, Tufts College Medical School, Boston, 1917, served overseas during World War I, during World War II served on the Selective Service Board in 1945 appointed by the board of health as contagious disease physician for three local parochial schools, named city physician in 1923 and medical examiner for the first Plymouth District in 1933, later associate medical examiner, member of the staff of the Brockton Hospital, trustee of the Brockton Savings Bank of which he was an incorporator, died Jan 25, aged 61, of cerebral hemorrhage

Snow, Lucille Hammel * Wilmette, Ill , University of Illinois College of Medicine, Chicago, 1928, specialist certified by the American Board of Obstetrics and Gynecology, fellow of the International College of Surgeons and the American College of Surgeons, clinical associate, obstetrics and gynecology, Loyola University Stritch School of Medicine, on the staff of St Francis Hospital in Evanston, Mercy, Lewis Memorial Maternity, Illinois Masonic, and the Women and Children's hospitals in Chicago, first president of the Chicago Women's Medical Association, died Feb 8, aged 59, of myocardial infarction

Allen, George Smith, Clyde, N Y , University of Buffalo School of Medicine 1897, an associate member of the American Medical Association, past-president of the Wayne County Medical Society, veteran of World War I, served as postmaster of Clyde, as trustee of the Clyde High School, as county coroner, and in 1929 appointed health officer of the consolidated district of the village and the town of Galen, a director of the Citizens Bank of Clyde, died in the E J Barber Hospital, Lyons, Feb 9, aged 83, of uremia

Haskins, Henry Edgar * Kingman, Kan , born in Galva, Sept 18, 1878, Beaumont Hospital Medical College, St Louis, 1901, for many years member of the State Board of Medical Registration and Examination, county health officer, for many years member of the school board, director of the Kingman County Fair Association, the State Bank of Kingman, the Kingman Savings and Loan Association, and the Bankers Investment Company, attending physician at the Kingman Memorial Hospital, where he died Feb 1, aged 78, of acute coronary occlusion

Christensen, Axel Herlof, Geneva, Ill , the Hahnemann Medical College and Hospital, Chicago, 1897, formerly practiced at Clark, S D , where he was coroner of Park County for many years and a charter member of Rotary Club, of which he was president for three years, a member of the Selective Service Board during World War I and World War II, received a congressional citation for his services, served on the staff of the Silver Cross Hospital in Joliet, died March 5, aged 87, of pneumonia

Hodgkins, Edward Marshall * Boston, Tufts College Medical School, Boston, 1915, served on the faculty of his alma mater and in 1950 received the school's distinguished service key, fellow of the American College of Surgeons, veteran of World War I, served on the staffs of the Glover Memorial Hospital, Needham Boston Dispensary, and Boston Floating Hospital, consultant Booth Memorial Hospital in Brookline, Emerson Hospital, Concord, and the Somerville (Mass) Hospital, died Jan 20, aged 65

Truex, Samuel Lamont, Middletown N Y , Long Island College Hospital, Brooklyn, 1911, specialist certified by the American Board of Obstetrics and Gynecology, fellow of the American College of Surgeons, veteran of World War I, consultant, Monticello (N Y) Hospital, Maimonides Hospital, Liberty, and Newton (N J) Memorial Hospital, on the attending staff of the Elizabeth A Horton Memorial Hospital, died in the Eye and Ear Infirmary, Newark, N J , Dec 15, aged 69, of embolism

Weber, Charles John Jr, Major, U S Air Force, Pittsburgh, George Washington University School of Medicine, Washington, D C, 1948, certified by the National Board of Medical Examiners, served as an officer in the Medical Corps of the Army of the United States and the U S Air Force, interned at the Waterbury (Conn) Hospital, served a residency at the Presbyterian Hospital and the Children's Hospital in Pittsburgh, service member of the American Medical Association, died Dec 24, aged 33, of a heart attack

Whittemore, Wyman, Boston, Harvard Medical School, Boston, 1905, formerly professor of clinical surgery at Tufts College Medical School and on the faculty of his alma mater, member of the American Surgical Association and the American Association for Thoracic Surgery, fellow of the American College of Surgeons, served as consulting surgeon at the Peterboro (N H) Hospital, Sturdy Memorial Hospital, Attleboro, Massachusetts Eye and Ear Infirmary, and Beth Israel and Massachusetts General hospitals, died Jan 24 aged 77

Acker, Wesley Harrison ⊕ Waterloo, Iowa, Rush Medical College, Chicago, 1917, interned at Cook County Hospital in Chicago, on the staff of the Schoitz Memorial Hospital, died Feb 3, aged 65, of coronary thrombosis

Alger, Edmund Whitney, Minneapolis, University of Minnesota College of Medicine and Surgery, Minneapolis, 1902, died in St Barnabas Hospital Jan 26, aged 80, of lobar pneumonia and acute coronary thrombosis

Baselice, Peter Paul ⊕ Long Island City, N Y, Regia Università degli Studi di Roma Facoltà di Medicina e Chirurgia, 1935, served during World War II and was awarded the Bronze Star for meritorious achievements, on the staffs of the Astoria (N Y) General Hospital and the Columbus Hospital, died in the Roosevelt Hospital, New York City, Jan 26, aged 49, of uremia

Beebe, Orville Everett ⊕ Bellingham, Wash, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois 1903, past-president of the Whatcom County Medical Society, served as county health officer, died Jan 20, aged 80, of diabetes mellitus

Belknap, Leland Vess ⊕ Portland, Ore, University of Oregon Medical School, Portland, 1919, fellow of the American College of Surgeons, on the staff of the Physicians and Surgeons Hospital, died Jan 24, aged 62

Bell, Richard Phillips ⊕ Staunton, Va, University of Virginia Department of Medicine, Charlottesville, 1905, member of the founders group of the American Board of Surgery, member of the Southern Surgical Association, fellow of the American College of Surgeons, past-president of the Augusta County Medical Society, on the staff of the King's Daughters Hospital, died Jan 23, aged 75, of coronary thrombosis

Besser, Rudolph Walter ⊕ Burbank, Calif, College of Medical Evangelists, Loma Linda and Los Angeles, 1937, certified by the National Board of Medical Examiners, on the staffs of the California Lutheran Hospital in Los Angeles, Glendale Sanitarium, and Behrens Memorial Hospital in Glendale, and St Joseph's Hospital, died Feb 10, aged 49, of dissecting aneurysm of the aorta

Boysen, Peter ⊕ Modesto, Calif, University of Pennsylvania Department of Medicine, Philadelphia, 1905, for many years medical director and owner of a hospital bearing his name in Pelican Rapids, Minn, where he served on the school board, died in Pittsburg Jan 11, aged 80, of arteriosclerotic heart disease

Bracey, Lewis E, ⊕ Sheridan, Mich, Detroit College of Medicine, 1905, past village president and past school board member, served on the staff of the Kelsey Hospital in Lakeview, died Jan 20, aged 84, of cardiovascular disease

Butt, Charles Colwell ⊕ Nelsonville, Ohio, Medical College of Ohio, Cincinnati, 1909, health commissioner of Nelsonville and Yorkship health officer for many years, on the staff of Mount Saint Mary's Hospital, where he died Jan 14, aged 70, of cancer

Cables, Henry Albert ⊕ East St Louis, Ill, St Louis University School of Medicine, 1903, died Feb 13, aged 87

Carroll, Stevan Melton Jr ⊕ Marietta, Ga, Emory University School of Medicine, Atlanta, 1952, interned at the Grady Memorial Hospital, where he served a residency, member of the American Heart Association, veteran of World War II, instructor in pediatrics at his alma mater, chief of pediatrics at the Kennestone Hospital, killed Jan 24, aged 31, of injuries received when his automobile was struck by a train

Christensen, John F ⊕ Boulder, Colo, John A Creighton Medical College, Omaha, 1909, member of the Washington State Medical Association, on his retirement honored for long service as physician to Kelso (Wash) High School athletic teams, for many years president of the board of Cowlitz General Hospital in Longview, Wash, died Jan 28, aged 76, of coronary thrombosis

Clifton, John Lester Jr, ⊕ Columbus, Ohio, Ohio State University College of Medicine, Columbus, 1933, member of the American Academy of General Practice, on the staffs of the Grant and Mount Carmel hospitals, and the White Cross Hospital, where he died Jan 24, aged 48, of cancer

Cliver, Paul Mitchell, Laguna Beach, Calif, the Hahnemann Medical College and Hospital, Philadelphia, 1907, fellow of the American College of Surgeons, served on the faculty of his *alma mater*, formerly practiced in Chicago, died March 3, aged 77, of cerebrovascular accident and arteriosclerosis

Collins, Joseph Daniel ⊕ Northampton, Mass, Harvard Medical School, Boston, 1910, member of the American Academy of Ophthalmology and Otolaryngology, veteran of World War I, on the staffs of the Veterans Administration Hospital, Northampton State Hospital, and the Cooley Dickinson Hospital, where he died Jan 13, aged 75, of coronary thrombosis arteriosclerosis

Collins, D Bruce, Waurika Okla, Vanderbilt University School of Medicine, Nashville, Tenn, 1900, an associate member of the American Medical Association, formerly medical director of the Waurika Hospital which he owned retired surgeon for the Rock Island Railroad, died Feb 2 aged 77 of cancer

Combs Henry Burris, Bastrop Texas, University of Nashville (Tenn) Medical Department, 1892, Vanderbilt University School of Medicine, Nashville, 1892, died in Kerrville, Texas Dec 20 aged 85

Conlon, Philip Jerome ✠ Newark, N J, University of Pennsylvania School of Medicine, Philadelphia, 1910, served during World War I and was awarded the Croix de Guerre with two stars and the Distinguished Service Cross, on the emeritus staff, Harrison S Martland Medical Center, served on the surgical staffs of St Marys Hospital in Orange, and St Michaels Hospital, where he died Feb 7, aged 74 of cerebral hemorrhage

Cornfeld Morris, Philadelphia, University of Pennsylvania Department of Medicine Philadelphia, 1908, on the staff of the Albert Einstein Medical Center, an associate member of the American Medical Association, died Feb 13 aged 70 of gastric cancer

Cummings, Glenn C ✠ Rochester, N Y, University of Buffalo School of Medicine 1927, local examining physician for inductees during World War II, member of the Rochester Academy of Medicine and the Rochester Pathological Society, fellow of the American College of Allergists on the staff of the Genesee Hospital died Feb 5 aged 56 of coronary disease

Currie, Angus Bliss ✠ Groveton Texas (licensed in Texas under the Act of 1907), died Dec 28 aged 78

Davis George Washington, Ottawa Kan University Medical College of Kansas City Mo, 1896 veteran of World War I county health officer, died Jan 26 aged 88 of acute pulmonary edema

Davison, Seward Roland, Johnstown Pa, Jefferson Medical College of Philadelphia, 1905, an associate member of the American Medical Association, on the staff of the Conemaugh Valley Memorial Hospital, where he died Jan 15 aged 76, of cerebral thrombosis arteriosclerosis, and pyelonephritis

Deppe, Arthur H ✠ St Louis Washington University School of Medicine, St Louis, 1910, specialist certified by the American Board of Psychiatry and Neurology veteran of World War I, on the staff of the Evangelical Deaconess Home and Hospital, where he died Jan 17, aged 68, of arteriosclerotic heart disease

Dotterrer, Charles Brower, Boyertown, Pa, Medico-Chirurgical College of Philadelphia, 1902, formerly city councilman, veteran of World War I, died Jan 22, aged 77, of chronic myocarditis

Ervin, Humphrey Newton, Colonel, U S Army, retired, Springfield, Va, Ohio-Medical College of the University of Cincinnati, 1912, service member of the American Medical Association, veteran of World War I and II, entered the regular army Sept 8, 1920, retired March, 1947, returned to active duty from April 1, 1947 to Oct 4 1947, died Jan 6, aged 73

Evans, John Grant ✠ New Hartford, Iowa, State University of Iowa College of Medicine, Iowa City, 1893, formerly mayor of New Hartford and school board member, on the staffs of the Sartori Memorial Hospital in Cedar Falls, and Allen Memorial and St Francis hospitals, for many years surgeon for the Illinois Central Railroad died Jan 10 aged 90 of cerebral arteriosclerosis

Flynn, James Graham, Houston, Texas, University of Texas School of Medicine, Galveston, 1907, veteran of World War I, member of the Texas Medical Association, fellow of the American College of Surgeons, clinical professor of surgery at Baylor University College of Medicine, on the visiting staffs of the Methodist and St Joseph's hospitals, consultant, Hermann and Memorial hospitals, died in the Hermann Hospital Jan 31, aged 71

Fox, John W, St Petersburg, Fla, Detroit College of Medicine, 1897, died Feb 7, aged 85, of coronary occlusion

Franklin, Isidor Harold ✠ Jersey City, N J, Columbia University College of Physicians and Surgeons, New York City, 1912, veteran of World War I, on the staff of the Jersey City Medical Center, president emeritus and chairman of the board, Fairmount Hospital, died Jan 26, aged 66, of pneumonia and cardiac failure

Japhe, Nathaniel Michel, Mays Landing, N J, Long Island College Hospital, Brooklyn, 1926, member of the Industrial Medical Association, served on the staff of the Sydenham Hospital in New York City, died Dec 27, aged 52, of coronary occlusion

Johnson, David Ferdinand, Chunky, Miss, College of Medical Evangelists, Loma Linda and Los Angeles, 1937, certified by the National Board of Medical Examiners, served during World War II, formerly on the staff of the Madison Sanitarium and Hospital, Madison College, Tenn, died Feb 22, aged 52

McCann, William George ✠ Upper Darby, Pa, Hahnemann Medical College and Hospital of Philadelphia, 1949, veteran of World War II, later a captain in the U S Naval Air Force Reserve, on the staffs of the Thomas M Fitzgerald Mercy Hospital in Darby and the Hahnemann and Misericordia hospitals, died Jan 31, aged 31, of viral hepatitis

McCartney, Oliver Perry, Cheyenne, Wyo, Gross Medical College, Denver, 1901, veteran of World War I, died Jan 7, aged 87

McElligott, Joseph Arthur ✠ Milwaukee, Marquette University School of Medicine, Milwaukee, 1931, interned at Mercy Hospital in Oshkosh, at one time assistant superintendent of the Northern Hospital for the Insane in Winnebago, for many years physician with the maternal and child health bureau of the city health department, died Dec 21, aged 54

McMahon, Francis Joseph, Oteen, N C, St Louis University School of Medicine, 1925, on the staff of the Veterans Administration Hospital, service member of the American Medical Association, veteran of World War II, died in Rappolo, Italy, Jan 1, aged 57, of pulmonary emphysema and myocardial insufficiency

Mendel, Ernest, New York City, Ludwig-Maximilians-Universitat Medizinische Fakultat Munchen, Bavaria, Germany, 1920, member of the Medical Society of the State of New York, died in the Wickersham Hospital Jan 18, aged 61

Merchant, John Crapo, Nassau, N Y , Albany (N Y) Medical College, 1903, died in Essex Junction, Vt , Jan 14, aged 84

Miller, James Edison, Lieut Commander, U S Navy, retired, Acampo, Calif , Chicago College of Medicine and Surgery, 1916 entered the U S Navy in 1918, retired Nov 1, 1934, service member of the American Medical Association died Jan 5, aged 66

Muench, William George, Syracuse, N Y , Bellevue Hospital Medical College, New York City, 1898, an associate member of the American Medical Association, past president of the Academy of Medicine of Syracuse, for *many years physician to the Franciscan* Fathers, on the staff of St Joseph's Hospital, where he died Jan 9, aged 82, of congestive failure

Northrup, Laurance Curtis ⊕ Tulsa, Okla , University of Nebraska College of Medicine, Omaha, 1919, fellow of the International College of Surgeons, at one time county physician, member of the staff of the Hillcrest Medical Center, died Jan 24 aged 63, of cerebral thrombosis

Owensby, Oscar Monroe, Linden, Ala , Ensworth Medical College, St Joseph, Mo , 1909, formerly on the staff of the Mount Carmel Hospital in Pittsburg, Kan , veteran of World War I, died Dec 26 aged 74, of coronary thrombosis

Pierson, Frank F ⊕ Wilmington, Del , Hahnemann Medical College and Hospital of Philadelphia, 1891, draft examiner during World War I, once president of the staff of the Memorial Hospital, formerly known as the Homeopathic Hospital, which he originally joined, died Jan 23, aged 87, of carcinoma of the stomach

Poole, Lewis Roy ⊕ Easley, S C , Medical College of South Carolina, Charleston, 1925, member of the American Academy of General Practice, at one time health officer of Dothan, Ala , veteran of World War II, on the staff of the Greenville General Hospital, where he died Jan 9, aged 57, of carcinoma of the lungs with metastases

Powell, Charles M , St Louis, Meharry Medical College, Nashville, Tenn , 1910, died Dec 7, aged 84

Ray, Earl Bryning ⊕ Bellflower, Calif , College of Medical Evangelists, Loma Linda and Los Angeles, 1929, certified by the National Board of Medical Examiners, member of the American Academy of General Practice, veteran of World War II, served as chief of staff at Long Beach (Calif) Community Hospital, on the staffs of the Downey (Calif) Hospital and the Bellwood General Hospital, died Jan 5, aged 59, of coronary thrombosis

Renz, Herman Armand ⊕ Chicago, Hessische Ludwigs-Universitat Medizinische Fakultat, Giessen, Hesse, Germany, 1907, on the staff of the American Hospital, died Feb 15, aged 76, of carcinoma of the lung

Rockett, Fred William Boyd, San Antonio, Texas, Baylor University College of Medicine, Dallas, 1911, member of the American Academy of General Practice, died Oct 9, aged 70

Taylor, Paul James, Philadelphia, Jefferson Medical College of Philadelphia, 1906, died Nov 16, aged 82

Thompson, George W , Mount Vernon N Y , Howard University College of Medicine, Washington, D C , 1904, died in the Mount Vernon Hospital Jan 13, aged 84

Thompson, Ross W , Erie, Pa , Western Pennsylvania Medical College, Pittsburgh, 1902, an associate member of the American Medical Association, veteran of World War I, died Jan 6, aged 79, of coronary thrombosis

Tillotson, Joseph Elmer ⊕ Colusa, Calif , Columbia University College of Physicians and Surgeons, New York City, 1929, certified by the National Board of Medical Examiners, fellow of the American College of Surgeons, for many years surgical director of the Colusa Memorial Hospital, died in the Mercy Hospital, Sacramento, Jan 21, aged 53, of injuries resulting from an automobile accident

Williams, Carl Alonzo ⊕ St Petersburg, Fla , Hahnemann Medical College and Hospital of Philadelphia, 1895, past-president and for many years member of the Florida State Board of Medical Examiners, for many years practiced in New London, Conn , and in Worcester, Mass , died in the Lawrence and Memorial Associated Hospitals, New London, Conn , Dec 24, aged 84, of arteriosclerotic heart disease and popliteal aneurysm

Williams, John Wesley, Ingomar, Miss (licensed in Mississippi in 1908, died in the Shands Hospital, New Albany, Jan 21, aged 86

Woodward, Mortimer Lee ⊕ San Angelo, Texas, University of Tennessee College of Medicine, Memphis, 1922, died in Lampasas Dec 6, aged 71

Yazel, Herman Eugene ⊕ Kansas City, Mo , Ensworth Medical College, St Joseph, Mo , 1907, member of the American Academy of Ophthalmology and Otolaryngology, served in France during World War I, died in the Trinity Lutheran Hospital Jan 19, aged 76, of cerebral hemorrhage, arteriosclerosis, and diabetes mellitus

Young, Ruth Marie ⊕ Sharples, W Va , University of Pennsylvania School of Medicine, Philadelphia, 1951, served an internship at the Hospital of the University of Pennsylvania in Philadelphia, certified by the National Board of Medical Examiners, president and formerly secretary of the Boone County Medical Society, died Feb 9, aged 30, of asphyxiation and burns suffered during a fire, apparently caused by smoking in bed

Young, Simon J ⊕ Kendallville, Ind , Harvey Medical College, Chicago, 1902, fellow of the American College of Surgeons, served on the staff of the McCray Memorial Hospital, died Jan 13, aged 88

FOREIGN LETTERS

BRAZIL

Eosinophilic Skeletal Granuloma.—Dr. Lamartine Paiva and co-workers (*Rev. Hosp. clin.* 11:388, 1956) reported on the treatment with corticotropin of eosinophilic granuloma in bones. In a total of 450,000 patients admitted to the hospital since it opened, there were 10 with xanthomatosis. These cases were classified as follows: five cases of eosinophilic granuloma of the skeleton, one fatal case of Letterer-Siwe's disease and four cases of chronic idiopathic xanthomatosis. Of these 10 patients 2 with eosinophilic granuloma were treated with corticotropin and one with chronic idiopathic xanthomatosis was treated with cortisone. The rest of the patients were treated by irradiation and operation. The 10 patients reviewed by the authors belong to a series of only 15 patients with xanthomatosis reported in the Brazilian literature between 1930 and 1954.

The new case of eosinophilic granuloma reported by the authors was that of a 3-year-old child with a purulent discharge from the left ear and an elastic bulging of the right frontoparietal region. Incision of this bulging yielded a purulent material supposedly from an infection of the scalp. With the tentative diagnosis of chronic cholesteatomatous mastoiditis of the right side a mastoidectomy was performed. Great destruction of the osseous tissues of the mastoid process was found, with exposure of the meninges and the lateral sinus, the cavity being filled by granulomatous tissue. Microscopy revealed a chronic nonspecific inflammatory process without signs of osseous neoplasm. Other laboratory tests failed to reveal any specific process. Roentgenograms showed osteolytic lesions of the right frontal, parietal and temporal bones. A biopsy specimen of the parietal lesion was found to contain eosinophilic granulomatous tissue. The patient was given a total of 210 units of corticotropin intramuscularly in 24 days. After a six-month interruption of the treatment, the patient was readmitted to the hospital in about the same condition as on his previous admission and the treatment was resumed; 2,710 units of the hormone was given in 128 days. A marked improvement was obtained, as demonstrated by roentgenograms taken two and four months after the patient's discharge from the hospital.

Translumbar Aortography in Urology.—Although the radiologic visualization of the abdominal viscera was introduced by R. Santos in France between 1925 and 1931, it was rarely, if ever, used in Brazil until recently. Dr. G. Campos Freire and co-workers (*Rev. paulista med.* 49:321, 1956) reported its use in a selected group of patients. It was not used on those with uremia, poor general condition, or an idiosyncrasy to iodine. It was used on those in whom (1) the diagnosis could not be made by routine methods, (2) the urologic diagnosis had been made but aortography was expected to give supplementary information, and (3) aortography could theoretically furnish useful information about renal function based mainly on the radiologic findings in the renal arteries. The authors' series consisted of 10 patients between the ages of 18 and 68 years (average, 28 years). One had a horseshoe kidney; one, a polycystic kidney; two, hematuria with a negative excretory urogram (hydronephrosis due to extrinsic ureteral obstruction with retroperitoneal organized hematoma in one and renal block by ureteral obstruction due to a tumor of the bladder in the other); two, unilateral hypertensive nephropathy (hypoplastic kidney in one and pyelonephritic contracted kidney in the other); one, a renal tumor; one, hydronephrosis, and two, retroperitoneal tumors (a lipoma in one and a cystic teratoma in the other).

The authors believe that the procedure is useful in the study of patients with unilateral kidney disease with hypertension (kidney disease unassociated with extreme cardiac decompensation), anomalies, and vascularization of kidney tumors. Above all, they emphasize the importance of the method in evaluating the reserve power of the kidney with obstruction. In some cases, they performed conservative operations on the kidney supported only by the vascularization seen by means of serial lumbar aortography. They emphasize also the value of the procedure in the study of retroperitoneal tumors.

Drainage of the Bile Ducts.—Dr. Plinio Bove and co-workers reported to the Associação Paulista de Medicina on surgical drainage of the bile ducts in a series of 348 patients. Comparing the results with different procedures, they pointed out the good results obtained with Kehr's sound, especially when the instrument is made of soft latex, and the poor results of transpapillary drainage. At first they used a longitudinal incision of the choledocus, but now they prefer a transverse incision. The fixation of the sound on the skin has the disadvantages that it may damage the duodenum and produce angulation of the choledocus during inspiration. The speakers' standard procedure consists of stitching the bed of the gallbladder to the sound, thus avoiding fixation on the skin. Indications for drainage include cholangitis, acute and chronic cholecystitis, perforation of the gallbladder, acute pancreatitis, and pseudocysts and tumors of the bile ducts. The serum bilirubin level, after an early increase, begins to fall about the 8th day and becomes low about the 20th.

DENMARK

Suicide Among Middle-aged Men.—*Nordisk medicin* for Jan. 3 quotes Danish investigations reported on at a recent life insurance congress. Up to the age of 50

The items in these letters are contributed by regular correspondents in the various foreign countries.

about half of all the deaths among men were due to accidents or suicides, and for those men between the ages of 30 and 40 suicide was numerically the most important cause of death, being responsible for 22% of all deaths, while accidents accounted for 19% These figures refer to the period 1951 to 1953, during which 43% of all the deaths among males between the ages of 10 and 20 years were due to accidents, while the corresponding figure for suicides was 7% Between the ages of 20 and 30, 34% of all the deaths were due to accidents and 19% to suicides Between the ages of 40 and 50, 10 5% of all the deaths were due to accidents and 14 5% to suicides In this last age group two other causes of death began to be prominent, with 23% of the deaths due to cancer and 19% to heart disease Accidents and suicides figured more prominently in the period 1951 to 1953 than in any earlier period during the past 30 years With traffic accidents largely responsible for the rise in the accident death rate, one might have expected this rate to be higher for men in towns than in the country, but in the period under review the accident death rate was about 30% higher in the country than in towns for men up to the age of 35, after 35, this inequality was reversed The suicide death rate, however, was much higher in towns than in the country For women, accidents and suicides caused comparatively few deaths

Prognosis of Fracture of the Femur —At a recent meeting of the Danish Surgical Society, Dr H Jensenius gave an account of a follow-up investigation of patients with fracture of the neck of the femur treated by osteosynthesis Of the 213 patients discharged from the hospital, 105 were still alive at least five years later A follow-up examination of 99 of these patients showed that 27 had developed necrosis of the femoral head, which in 3 was associated with pseudarthrosis In 18 patients the necrosis was total, and in 9 it was partial The necrotic head had collapsed in 20 In view of the age of the patients and the comparatively long observation period, the late mortality of 51% in this series of patients was not significantly greater than for the community as a whole at the same age When the material was split up so as to shorten the observation period and deal only with patients under the age of 75, the death rate exceeded the normal In 76% of the total, the ultimate result could be regarded as good, while in 16% there was moderate and in 8% severe discomfort In 67% of the patients with necrosis the results were poor Discussing the comparative merits of conservative and operative treatment in the light of the literature on the subject, Jensenius concluded that the operative treatment is preferable and that operative technique other than that followed in his hospital does not promise better results than his own

Sale of Vitamins —About 170 different vitamin preparations are on sale in Denmark Hitherto the position has not been quite clear with regard to whether they come under the apothecary law restricting the sale of certain drugs to duly qualified druggists or whether they may be sold over the counter in any shop In 1954, the government limited the sale of certain vitamin preparations to druggists The cudgels were then taken up by a grocer whose protest came up to the final court of appeal, which in January, 1957, decided in his favor This means that vitamin preparations may now be sold by grocers This judgment is not likely to be final, and decisions will yet have to be made drawing the line between vitamin preparations that act as drugs and vitamin preparations that are nothing more than articles of food An editorial in *Ugeskrift for læger* for Feb 14 reminds grocers that the court of appeal expects them to show a high sense of responsibility in this matter

Resistant Micrococci —A study of Micrococcus pyogenes var aureus has been published in book form by the *Dansk Videnskabs Forlag* It is a doctoral thesis, and its author, Dr Flemming Lund, has undertaken a comprehensive survey of the behavior of this organism in eight hospitals in Copenhagen He has tested its sensitivity to penicillin, streptomycin, chlortetracycline, oxytetracycline, and chloramphenicol Serving as controls were various persons not living in the hospitals During 1952 and 1953 cultures were taken from the nasal mucosa of 583 persons serving on hospital staffs In one hospital, 67% of the nurses were carriers of Micrococci, all of which were found to be penicillin-resistant and 44% of which were resistant to streptomycin and chloramphenicol The carrier rate varied somewhat in the different hospitals and according to whether the nurses were newcomers or had worked in the hospital for some time When 41 permanent Micrococcus carriers were examined, both while at work in the hospital and after a vacation of two to three weeks, the carrier rate was reduced from 100% to 35% and the penicillin-resistant strains from 77% to 33% A study of the use of chemotherapeutic drugs in the different hospitals suggested that the risk of the development of multiresistant strains of Micrococci rises with the degree of such use It would also seem that several Danish hospitals constitute a definite reservoir of resistant organisms, whose numbers are increased from new hospital infections The employment of broad-spectrum antibiotics has meant at present the development of totally resistant strains of Micrococci in several hospitals In Lund's opinion, *hospital infections with resistant Micrococci can best* be combated by prophylactic measures

FRANCE

Pharmaceutical Mixtures Assessed by Vestibular Chronaxy —G Mouriquand and co-workers (*Presse med* 65 6, 1957) had previously demonstrated the existence of two types of drugs as regards their action on vestibular chronaxy one type causing it to increase, and the other causing it to decrease The authors opposed the chronaxy-diminishing action of calcium glutamate to the chronaxy-elevating action of vitamins B_1 and C They thus achieved a chronaxial balance Storage in a tight container of this balanced mixture for about one year did not alter it nor did its du exposure to air On the other hand, the authors' vious experiments using solutions of thiamine hydrochloride and ascorbic acid had shown these to be markedly altered in their action on vestibular chronaxy after being in contact with air (elevating power changed to reducing power), but with no apparent modification of their therapeutic action. They observed that thiamine (simple or lyophilized) withstands this modification of the chronaxy by air better in the powdered form. It seems preferable, therefore, in the case of long storage, to use a fresh solution of the powder rather than an old solution.

Cardiac Surgery.—H. Laborit and co-workers (*Presse méd.* 65:81, 1957) summarize the biological principles on which they based their experiments in intracardiac surgery with the bloodless heart under artificial hibernation. Under normal body temperature, facilitated by a massive supply of dextrose, the heart usually may be resuscitated after a circulatory arrest of 15 minutes' duration. The metabolic depression due to hypothermia and general anesthetics seems to make resuscitation difficult by preventing the discharge of sodium from the cell and the reintegration of potassium. This concept prompted the authors to reduce the sodium level during hypothermia and to increase the potassium level keeping it only relatively low in spite of the various hypokaliemia inducing factors (neuroplegics insulin and dextrose). At body temperatures they increase the concentration of carbon dioxide in the inhaled gases, with a view to favoring the dissociation of oxyhemoglobin whereas, up to 25 C (77 F), on the contrary hyperventilation facilitates the elimination of sodium. Cardiac and pulmonary resuscitation following a clamping of 25 to 41 minutes' duration and right ventriculotomy is rendered possible by giving hypertonic dextrose, clamping the descending thoracic aorta, and electric defibrillation. Of 22 animals operated on at temperatures between 15 and 22 C (59 and 71.6 F), 14 survived more than two days and 8 that survived for a shorter period might have been saved by better postoperative treatment.

Neuromuscular Excitability.—M. Albeaux-Fernet and co-workers (*Presse méd.* 65:61, 1957) report that neuromuscular excitability, as studied in relation to the duration and intensity of an electric stimulus, depends on the adrenals. The excitability varies in relation to such local anatomic factors as thickness of the skin, subcutaneous edema, and increase of the panniculus adiposus. Such nervous and muscular disorders as alcoholic polyneuritis, paraplegia, and monoplegia produce typical modifications in excitability. Alterations in excitability due to endocrinometabolic factors depend on the potassium level, but not exclusively. Hypoexcitability results from exogenous hypercorticism following treatment with corticoids, the endogenous hypercorticism of adrenal cortical hyperfunction (Cushing's syndrome) with its negative potassium balance and hyperexcitability results from hypercorticism with potassium retention. Increase in potassium concentration does not indefinitely augment the excitability, potassium intoxication, exacerbations of adrenal cortical hypofunction, and massive overload of the muscle with potassium in the course of periodic paralysis tend to reduce excitability, just as does an extreme potassium depletion. There is a parallelism between the electrocardiogram and neuromuscular excitability, the latter being a delicate index of modifications in kaliemia and tissular metabolism of the potassium ion, the evaluation of which is clinically difficult. Myxedema is accompanied by a diminution in excitability of nerves and muscles. Hyperthyroidism may be associated with neuromuscular hyperexcitability.

Response of the Adrenal Cortex in Manic-Depressive Crises.—H. Faure and co-workers (*Presse méd.* 65:65, 1957) investigated the possible correlations between the response of adrenal cortex to stimulation with corticotropin and biological reactions subsequent to electric shock in manic-depressive crises. They attempted to show that this correlation may allow the prediction of the effects of electroshock therapy. Twelve patients with acute manic and depressed states were studied. Each patient received 25 mg. of corticotropin parenterally and subsequently a series of six electroconvulsive shocks. There was a true correlation between the biological responses of the adrenal cortex after the administration of corticotropin and the clinical results due to shock therapy. The patients who responded most abnormally, biologically, to corticotropin before the treatment and to electroshock during the treatment were those who showed the most favorable clinical result, and vice versa.

Experimental Hypothermia and Allergy.—Vukobratovic and Bata (*Presse méd.* 65:7, 1957) state that hypothermia produces a favorable and protective effect against phenomena induced by the action of those substances that release histamines. As a rule, in experimental animals the level of the plasma histamine following injection of a histamine-liberator during the course of hypothermia is lower than that in normal animals. Such experimental facts have a bearing on the use of artificial hypothermia in patients in whom there is an endogenous release of histamine (snake bite, stings of insects and arthropods, and opiate poisoning). When rats were injected with a dextran solution during induced hypothermia, they showed no external signs and their plasma histamine level did not rise so high as that of the control animals. In allergic patients in whom focal hypothermia is effected there is no intradermal reactions to histamine and allergens. Conversely, these reactions become positive under normal conditions of body temperature.

Antituberculous Activity of Sulfoniazide.—Barety and Choubrac (*Presse méd.* 65:21, 1957) report that sulfoniazide, a new antituberculous agent, acts as a molecule and not by the release of isoniazid. It is well tolerated. Of 31 tuberculous patients treated with this drug, 13 showed significant radiologic clearing of pulmonary lesions and clinical improvement. Only six were classed as therapeutic failures.

Splenic Infarcts.—R. Poinso and co-workers (*Presse méd.* 65:84, 1957) report that splenic infarcts are due to an obstruction by an embolus or a thrombus in the main stem or terminal branches of the splenic artery

They are characterized by sudden pain in the right hypochondrium, fever, and increasing splenomegaly They may be divided into those occurring in the course of (1) polycythemia vera and mitral stenosis and other cardiac diseases, (2) certain infections or parasitic diseases, (3) hemopathies, especially those associated with malignancy, and (4) thromboembolic diseases Pathologically they may be classified as red or white Massive primary infarcts, especially those seen in thromboembolic disease, begin with agonizing pain in the left hypochondrium and a rise in temperature The patient appears acutely ill The presence of a polymorphonuclear leukocytosis suggests a splenic abscess Secondary infarcts occurring in the course of cardiac disease are due to an embolus or splenic endothelitis The presence of a large spleen in a patient with mitral stenosis is always indicative of an infarct The death rate in patients with splenic infarction is about 40% The treatment is nearly always surgical

New Hypoglycemic Agent—At the meeting of the Medical Society of Hospitals in Paris, in January, Felix Ramond reported that he had discovered a nontoxic hypoglycemic drug that may be taken by mouth Having noticed that diabetes among natives of Morocco was sometimes cured by a mysterious powder, the composition of which was jealously guarded, he had been able to identify it as the powdered leaves from the avocado and determined that only dried leaves covered with Fungi Imperfecti had any power This mould is easy to produce and is without antibiotic power Given three times a day in 150 mg doses, it can effect a lowering in glycosuria within six days

Inoculation Trypanosomiasis—Gallais and Collomb (*Presse med* 65 155 1957) report that African trypanosomiasis, after a course of variable duration, ends in a severe encephalitis in which there is a contrast between the psychic, neuroendocrine disorders on the one hand and the absence of focal neurological signs on the other hand Clinical observation of the patient has revealed a natural psychic 'dissolution,' formerly sought as a treatment for schizophrenia For this reason the authors inoculated 23 severely psychotic patients, most of whom were schizophrenic, with Trypanosoma gambiense They concluded that, if the patients are closely observed, the method is not hazardous In some patients lasting cures were obtained after failure of other methods

Cancer of the Colon—J Delarue and co-workers (*Presse med* 65 2164, 1957) state that malignant tumors of the colon are profusely vascularized This is confirmed by the frequency of hemorrhages from the cancerous tissues The new-formed network does not show an anarchic irregular structure as generally believed Vascular trees as a clearly segmented structure may be seen These vascular trees are attached to an arterial pedicle directly connected to the peripheral vascular system, with arteriovenous anastomoses in the vicinity of the pedicle The modifications of the circulatory system in carcinomas should not be regarded as resulting from a mere reaction related to the disordered growth of the tumorous cells It would appear that the preexisting circulatory system plays a leading role in impressing on the growth of the neoplasm an arrangement quite different from that of normal tissues but one in which an "organoid" structure is to be found

Thromboelastography—Benhamou and Griguer (*Presse méd* 65 2157, 1957) state that thromboelastography is a simple and easy technique that is helpful in the study of hemophilia, hemogenia, congenital or acquired hypoconvertinemia, obstetric and surgical afibrinogenemia, arterial or venous thrombosis, hypocoagulability (either spontaneous or due to anticoagulants), cirrhosis, malignant hemopathy, and possibly all diseases associated with disorders of clotting The thromboelastograms from patients with hemophilia, hemogenia, and thrombophilic syndromes have a characteristic, immediately recognizable appearance Those of patients taking anticoagulants are also typical and give us a better understanding of the action of the anticoagulants When they are considered with the other coagulation tests they aid in the proper treatment of arterial or venous thrombosis

Neurological Manifestations in Acute Porphyria—In *La presse medicale* (2 2, 1957), Bonduelle and coworkers reported that acute porphyria is less rare than is thought Since 1951, they have observed seven patients with this disease, six of whom had polyneuritic forms The disease follows a cyclic course, with a preparalytic period characterized by severe digestive symptoms, insomnia, mental disturbances and urinary symptoms Paralysis appears between the 30th and 40th days and reaches its maximum intensity 5 to 10 days later Death from respiratory paralysis may occur If it does not occur within one to four weeks, a regression occurs that ends, after some months, in a complete recovery Bouts of mental and digestive symptoms may mask the regular cyclic evolution of the disease Although artificial respiration may improve the prognosis in patients with this condition, it is still a disease that threatens life

Intratubal Injections—Biet and Legros (*Presse med* 65 2197, 1957) report on the treatment of various lesions of the oviducts with antibiotics combined with uterotubal injections of hydrocortisone This treatment in patients with acute or subacute infection, including tuberculosis, prevented the formation of fibrosis, permitting reestablishment of tubal patency following tubal pregnancy, and reduced the number of operations for removing the painful tubal masses These results, however, can be obtained only when the treatment is applied early

INDIA

Glucose Tolerance Tests in Cholera—S Banerjee and co-workers (*Indian J M Res* 45 1, 1957) undertook a study of the utilization of dextrose by patients with cholera, since earlier reports by other authors on the blood sugar values of such patients were contradictory An intravenous glucose tolerance test was performed on 22 patients with cholera and on 8 with gastroenteritis as soon as the patients were admitted to the hospital and before any specific treatment was given. Inorganic blood phosphorus values were also determined before and after administration of dextrose. Most of the patients had initial hyperglycemia, but a few had normal blood sugar levels. After the intravenous injection of dextrose, the blood sugar values rose, but two hours after the injection they came down, in most cases, below the initial level. The inorganic phosphorus level of the blood was high in all patients, and there was no correlation between the blood sugar and inorganic phosphorus levels after the injection of dextrose. The authors recommend intravenous administration of dextrose in performing a tolerance test. The study showed that, in spite of hyperglycemia, these patients can utilize dextrose. The patients suffering from gastroenteritis behaved similarly, thus indicating that the changes in the blood sugar and inorganic phosphorus levels observed were not specific for cholera.

Malnutrition in School Children.—Nutrition surveys conducted by the Urban Health Center under the joint auspices of UNICEF and the Union Government revealed that many school children in India suffer from malnutrition. The results of these surveys will help to ascertain the correct diet for these children. Surveys carried on in West Bengal revealed that the diet of many school children was deficient in vitamin B complex. To obtain an idea of the nutritional status of the school children of an urban area in Calcutta, the survey covered 345 children between the ages of 6 and 12 years in a local school representing different economic levels. The most common deficiency found among the children was that of vitamins A and C and protein. About 23.5% of the children suffering from a deficiency of vitamin B complex had such disorders as decayed teeth and glossal ulcers. One of the most important points that came to light was the high incidence of various deficiencies among children who came from families of good economic status. These were attributed to the absence of a controlled diet and the freedom to consume foodstuffs from vendors and shops. Surveys carried out in other states revealed that in Bihar the children suffered from diseases resulting from vitamin A deficiency. In East Punjab, rickets and simple goiter were the most common manifestations of deficiency. In Orissa and Madhya Pradesh most children showed deficiency of one form or other.

Cooperative Milk Unions.—Plans for the development of the milk industry have been included in the second Five-Year Plan. These plans envisage 36 cooperative milk unions for the supply of milk to urban areas by procuring milk from surrounding villages, establishing colonies for milch cattle, large dairies for improving the milk supply to those cities, 12 cooperative rural creameries, and 7 milk-products factories, expanding existing dairies, and establishing milk boards.

Cerebral Tuberculoma.—B. Ramamurthi (*Indian Journal of Surgery,* Dec., 1956) states that in a series of 476 suspected intracranial tumors 15.1% were tuberculomas. Tuberculous infection of the nervous system is secondary to a primary focus elsewhere in the body and is probably hematogenic. Tuberculomas have usually been found in patients who are better nourished than most tuberculous patients. Most of them have occurred without the patient having had any previous history of tuberculous meningitis. About half the patients gave a history of pulmonary tuberculosis or contact with a tuberculous patient, and 25% showed evidence of tuberculosis elsewhere in the body. The diagnosis was presumptive, but in 80% of the patients it proved correct. Roentgenograms of the skull occasionally showed a calcified area, but this is not common. Roentgenograms of the removed specimens showed much more obvious calcification. The tuberculomas occurred either under the meninges or inside the brain substance. There was no definite plane of cleavage between the brain and the tuberculoma. Histologically giant cell systems were not encountered as often as in tuberculous lesions elsewhere in the body. They were commonest in the younger age group, the incidence declining with age. The tuberculoma occasionally ruptured into the subarachnoid space or the ventricles and set an attack of acute tuberculous meningitis. Indications for operation were (1) progressively increasing intracranial pressure, (2) neurological disability, and (3) absence of response to antibacterial agents. Total removal is possible and results of the operation were good when streptomycin was given preoperatively and postoperatively.

Reserpine and Diabetes.—Menon and Ramakrishnan (*Antiseptic,* Feb., 1957) state that psychic or physical trauma can accelerate the appearance of latent diabetes in a hereditarily predisposed person, especially in association with infection, obesity, lack of exercise, or excessive eating. Rauwolfia serpentina has found a useful place in the control of stress factors and of the agitation caused by emotions and also in the treatment of mental disorders. In view of its antistress properties, it was given to 24 patients with diabetes who were selected irrespective of their age and duration or severity of their condition but with regard to some definite psychic trauma or stress factor. A glucose tolerance test was made before starting the treatment. The patients were hospitalized and given the maximum-calorie diabetic diet. Blood sugar determinations were made every four days to ascertain changes in its level. Two tablets of 5 mg. each were given three times daily for a month. No other drug was administered during this period. No appreciable change was seen in the blood sugar level, except in two patients with juvenile diabetes whose level showed a definite increase. Urinary sugar remained the same in 17 patients and showed a significant reduction in the rest. Total urinary output and frequency of micturition were reduced in all but four. Polydipsia was also decreased. In 16 patients there was a definite sense of psychological well-being. No serious side-effects were noticed. This drug thus had no definite effect on the blood sugar level, but it may occasionally be used as an adjunct in selected cases associated with definite stress in view of the psychological improvement produced after its administration.

UNITED KINGDOM

Vaccination Against Poliomyelitis with Live Virus Vaccines—In the *British Medical Journal* on Jan 12, D S Dane and co workers report that they tested vaccines made from TN type 2 and SM type 1 attenuated poliomyelitis virus The first was found to be noncytopathogenic in monkey-kidney-tissue culture and to produce no paralysis when inoculated intracerebrally into monkeys Excreted fecal virus was found to be cytopathogenic and to cause severe paralysis when inoculated intracerebrally into monkeys The laboratory characteristics of attenuation shown by TN type 2 virus that made it appear suitable for trial as a vaccine are not maintained after multiplication in the human intestine The SM type 1 virus was shown to spread within a normal family living under normal conditions of hygiene after the vaccination of one child in the family SM fecal virus was found to cause paralysis in some monkeys inoculated intracerebrally, whereas monkeys inoculated by this route with SM vaccine virus were not paralyzed Although the TN and SM strains are not yet acceptable for mass immunization, this does not mean that suitable strains will not be developed The authors believe that the minimum requirements for an attenuated poliomyelitis vaccine are as follows 1 The vaccine virus and any excreted virus should be intracerebrally avirulent for monkeys and perhaps also intraspinally avirulent, intracerebral avirulence alone may be acceptable provided the other requirements are fulfilled 2 The virus should not be transmissible from vaccinated to nonvaccinated persons 3 It and any of its progeny that are excreted should have some marker that differentiates them from the naturally occurring wild strains of virus 4 It preferably should not multiply in the throat 5 It should prevent paralytic poliomyelitis in those who are susceptible (This may not require 100% antibody response in vaccinated persons)

Novel Cardiac Operation—An operation to remove a tumor of the heart was successfully performed at Southampton Chest Hospital It is believed to be the first successful operation of its kind The patient, a 25-year-old man, had a benign tumor in the left side of the heart He had been operated on 10 days earlier, but when the surgeon discovered the position of the tumor, he decided to close the incision and perform another operation later from the opposite side In previous operations throughout the world the approach to such a growth was made through the left side of the heart Such operations have always failed At Southampton the approach was made from the right side It meant that the septum between the left and right sides had to be opened and closed again after the tumor was removed The patient had complained two years earlier that he was subject to blackouts He has now made an uneventful recovery

The Breath in Acute Leukemia—Dr E K Blackburn (*British Medical Journal,* Jan 19, 1957) calls attention to a new clinical sign consisting of a peculiar sweet odor of the breath found in 73 patients with leukemia (51 acute and 22 chronic cases) It was present in 12 of the patients with acute leukemia without obvious clinical involvement of the gums, mouth, or upper respiratory and alimentary tracts In six of these, there were signs and symptoms, such as splenomegaly, to suggest the true diagnosis, while ordinary clinical examination of the other six (other than the finding of halitosis) was unrewarding, and only after examination of the blood and bone marrow could the diagnosis be confirmed

Monilial Vaginitis—In the *British Medical Journal* of Jan 19, Jennison and Llywelyn-Jones describe the results of a clinical trial on patients with monilial vaginitis treated with nystatin and also with gentian violet Of 53 women with the disorder treated by means of a new type pessary containing 100,000 units of nystatin, 47, or 88%, were free from infection one week after treatment Of 36 treated with gentian violet, only 17, or 47%, were cured Of a group of 18 who had not responded to gentian violet, 16 were cured with nystatin In the patients seen four weeks after treatment, the relapse rate was 46% in those treated with gentian violet and 21% in those treated with nystatin No side-effects or local discomfort occurred with nystatin, whereas six of the women treated with gentian violet had a reaction that made it necessary to stop treatment One patient was given nystatin only by mouth, with an apparent cure

Discrimination Against Physicians—A circular to hospital authorities states that the Minister of Health proposes to follow the recommendation of the Guillebaud Committee that medical membership of regional hospital boards should normally not exceed 25% and that he has asked the boards to do the same when making appointments to hospital management committees Special considerations apply to boards of governors where provision has to be made not only for nomination of members by the hospital medical staff but also for nomination by the university (whose nominees may also be medical) Nevertheless, the Minister asks that regional hospital boards should secure a reasonable balance of lay representation when making nominations for membership of boards of governors

Olympic Award—The International Olympic Com mittee has awarded the 1956 Fearnley Cup to the Stoke Mandeville Games in recognition of the outstanding services of the International Sports Movement for the Paralyzed to the Olympic movement The Fearnley Cup is awarded annually to a sports organization in some country, this is not only the first time the cup has been won by Great Britain, but also the first time it has been awarded to a sports organization for the disabled The International Sports Movement for the Paralyzed was the creation of Dr L Guttmann, director of the National Spinal Injuries Center Mandeville Hospital, Aylesbury At the first Stoke Mandeville Games in 1948 there were 16 competitors, all from Great Britain, by 1952 the Stoke Mandeville Games had become international At the 1956 games no fewer that 300 paralyzed competitors from 19 different nations participated

Heavy Fine on Physician Urged.—The Minister of Health has been asked to inflict a heavy fine on a Salford family physician who issued National Health Service prescriptions to private patients. He admitted to the local medical service committee that the irregular issue of health service prescriptions had been going on since the health service started in 1948. The committee took a serious view of the manner in which his practice had been conducted and concluded that it had been his policy to use the National Health Service for the retention of the private practice he had enjoyed before 1948. The medical service committee in Surrey recommended that another physician be censured and have $280 withheld from his pay. It reports that when a man fell and fractured his skull, this physician, living a mile and a half away, failed to attend him until nine hours later. By then the man had died.

Deaths from Poliomyelitis Among Physicians.—Doll and Hill have shown that physicians between the ages of 25 and 45 years are at special risk of dying from poliomyelitis (*Brit. M. J.* 1:372, 1957). There are nearly 10 times as many deaths from the disease among physicians in this age group as there are in the general population in the same age group. Physicians who die from poliomyelitis are relatively young. One possible explanation is that persons in the higher social classes have a greater chance of contracting poliomyelitis, although there is no statistical evidence to support this belief.

Physicians Seek Alternative Health Plan.—Many physicians contemplating their position in the light of the present pay dispute with the Minister of Health assert that the National Health Service in its present form is unacceptable. Attention is being directed to other schemes such as those in force in the Dominions. In Australia, for example, the individual contributes what he believes he can afford to a voluntary health insurance scheme. His contribution is matched by a similar payment from the government. Coverage for sickness depends therefore on the scale of the combined contribution. About 75% of the population subscribe to the plan. Those whose incomes are below a certain level receive free medical treatment. Evidence of dissatisfaction with the National Health Service is provided in letters from many physicians. One of these points out that the health service is defective because it fixes the physician's wages at $2.21 per patient for a year's treatment. Not a penny extra is paid for house calls, consultations, advice given in the middle of the night, or increased operating expenses. (To a certain extent the last-mentioned can be deducted from taxable income.) No other civil servant of equivalent salary with equivalent working hours must pay for the heating, lighting, equipping, cleaning, taxes, and maintenance of his office. In addition to these expenses, it is essential that physicians maintain automobiles. The taxes on physicians' offices have been doubled, yet these offices are all subject to inspection and should improvements be necessary the physician must make them and without tax relief. The National Health Service is full of such anomalies, which are not generally realized. With a fixed rate of payment and an increasing overhead, the more attentive the physician is to his patients the less profit he makes. The physician loves his profession, but he cannot live on love.

Physicians Dissatisfied with National Health Service.—In a two-hour meeting at the Ministry of Health, the representatives of 40,000 National Health Service physicians failed to persuade Mr. Turton, the Minister, to concede a pay increase averaging $28 a week. There will, however, be no immediate strike or other drastic action. The Minister asked the physicians to confer with him again later in February, and they agreed to do so. This show of patience came at the end of a session during which the physicians, in a fighting and determined mood, had not pulled their punches. When one of them suggested that the invitation to a further meeting might be another delaying tactic, the Minister assured the delegation that he was reviewing the issues involved. Presumably at the next meeting he will produce some plan, though he gave the physicians no inkling of what he had in mind. After nearly a year of negotiation, a further three weeks of unproductive delay would seem to be a futile proceeding. Sir Russell Brain, president of the Royal College of Physicians and leader of the deputation, said after the meeting with Mr. Turton: "This is not merely a pay claim but a crisis of confidence. It goes to the roots of the relations between the medical profession and the government." After the meeting, the Ministry of Health issued a statement to the effect that the claim is for an increase of not less than 24% over present levels of remuneration (which in the case of general practitioners is, on the average, already 137% above the prewar level). The extra cost to the country would be about 56 million dollars a year. The claim has not been rejected, but, since the government is responsible for doing everything possible to combat inflation, the claim is considered untimely.

In other words, the Minister avoided expressing any opinion on the merits of the claim. Furthermore, he denied the profession's contention that the government is under a legal contractual obligation. Local meetings of the British Medical Guild are now taking place all over the country. The guild would come into action on the directive of a special representative meeting. Such a meeting will not be called before the next talks with the Minister.

The Incidence of Diabetes.—With the help of local general practitioners, Andrews has surveyed a third of the population of Cornwall in order to obtain statistics on the incidence and treatment of diabetes (*Brit. M. J.* 1:427, 1957). The incidence was found to be 5.6 per 1,000 persons in a population of just over 250,000. It varied from 3.2 to 8.4 per 1,000 persons within the areas of practice surveyed. No significant difference was found in the rural and urban areas of practice. The incidence was greater than the generally accepted figure of 2.3 per 1,000 persons for the country as a whole. This figure was based on the Ministry of Food returns made 10 years ago when essential foods were rationed, and, therefore, it is not reliable. A recent general practice survey gave an incidence of 3 6 per 1,000 The sex distribution shows a preponderance of women, in whom the incidence of the disease is 1 7 times that in men The average age of onset in both sexes was 52 years, although it tended to occur earlier in men The classic symptoms (thirst, polyuria, and loss of weight) were the reasons for seeking medical advice in only 41% of the patients In most cases the diagnosis was made on the patient's admission to the hospital for illnesses unrelated to diabetes, or it was made by general practitioners making routine urine tests This suggests that many mild cases of diabetes remain undiagnosed

Seventy-seven per cent of the patients attend a general medical or diabetic clinic for supervision About 20% adhere to a strict dietary regimen Of those requiring insulin, 80% of the men and 62% of the women administered it themselves, those unable to do so sought the help of other members of the household or the district nurse The nurse visited 15% of all diabetics in a year and gave insulin to 6% Most of these diabetics were well controlled, as diabetes or its complications were responsible for only 15% of all days spent by the patients in bed The general practitioner saw the average diabetic 10 times a year, which was twice the average for the population as a whole, and he was consulted by 91% at some time during the year The commonest cause of admission of the diabetic to the hospital was for stabilization, although 42% of all admissions were for conditions not associated with diabetes Cardiovascular disease was responsible for death in more than half the patients followed up The average age at death of both sexes was 67 years

The Changing Pattern of Leukemia —Lea and Abbott, from an analysis of 624 cases of leukemia occurring in the armed forces between 1940 and 1955, concluded that the pattern of the disease is changing (*Lancet* 1 389, 1957) The disease was acute in 59% of all cases, with an increase in age of the patient at onset from 29 years in 1940 to 33 in 1955 In the same period the age of the patient at the onset of chronic leukemia fell from 34 to 33 years These changes were not due to an increase in the average age of members of the armed forces, there was actually a decrease from 28 7 years in 1940 to 23 9 years in 1955 This increase in the incidence of leukemia is attributed to increased exposure to radiation and to the use of sulfonamides after 1940 Lea and Abbott cite the increase in the use of diagnostic radiology in the western countries in the last half century

Fatigue in Nurses —As a result of complaints that nurses are overtaxed and overstrained, a committee representing all grades of nurses in training schools was set up in 1954 to investigate the problem In their report, now published, the committee states that much of the overstrain and fatigue in nurses has its origin in emotional and mental rather than in physical causes One overriding factor is that the nurse, unlike other students, is cut off from her home life and spends her whole time, both working and offtime in [illegible] community and in an atmosphere of sickness centered on the hospital The remedy for this the committee suggests, is for the nurse to live like an undergraduate in a hostel not associated with the hospital and to have university terms as any other undergraduate so that she can go home for vacations She should be on duty for regular hours, and her first year should be spent in lectures and ward work under supervision and with no responsibility The young nurse should be protected from some of the rigors of hospital work A questionnaire dealing with hours of work, meals, lectures, and other relevant information was sent to 5,284 nurses in the southwest area The replies showed that half the student nurses in general hospitals work overtime, either regularly or often, and that in mental hospitals all of them work overtime half of them regularly Over one-third of all student nurses have lectures in their off-duty time This is attributed to a shortage of staff The committee proposes that more should be done to recruit older women, trained or untrained, to nursing

No Poliomyelitis Vaccine —It now appears as if relatively few children are going to be vaccinated against poliomyelitis before the summer Last December the Ministry of Health announced that it was hoped that supplies of vaccine would be ready early in the new year, and instructions were issued to health officers accordingly Early in February the Ministry announced that one batch of vaccine had to be discarded, because it had become contaminated, and that another batch required further testing before it could be released Later in the month it was announced that a batch of vaccine should be ready the following week and health officers immediately started to make appointments for children to report for vaccination Five days later the Ministry announced that there would be a further delay, as there had been an inexplicable change in the pH of the vaccine resulting in a change of color What has aroused the greatest resentment is the way the Ministry has misled the public by its repeated announcements of the vaccine being available shortly and then having to announce a further delay The effect on the morale of parents has been dep[illegible] able, and, inevitably, doubts have arisen in the [illegible] mind as to the ability of our research workers [illegible] manufacturers to provide the vaccine What the [illegible] public is that [illegible] try has never made clear to the public when [illegible] possible to give a precise date when the [illegible] batch will be ready This point has [illegible] phasized by the manufacturers [illegible] upset than they that the Ministry [illegible] misleading statements to the [illegible] Ministry has not issued [illegible] It is being left to the [illegible] reassure the [illegible] the Ministry [illegible]

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CORRESPONDENCE

LAOS MEDICAL MISSION

To the Editor:—In the Sept. 1, 1956, issue of THE JOURNAL, page 38, my editorial telling of our projected medical mission to Laos was published. We have been here now for six months. I would like to thank the hundreds of doctors who have written and helped me and tell them something of what has passed, reference we four "Mekong Medicine Men."

Our mission has two ends. Because I am a doctor, my duty is to the people who need doctors. They are needed here. That is simple. The second end of our mission is to make a sober, honest effort to show Asians who have never seen an American just what four of us are like. This is not always so simple.

The minister of health of Laos is the only doctor in the kingdom, by international standards. When we arrived he asked me to set up the team in the village of Vang Vieng. This village is a hard eight-hour jeep trip north from the capital of Vientiane to the foothills of the Himalayas. In a valley you will find Vang Vieng cradled in the mountains, wrapped in the warmth of the tropical sun and covered by the bluest sky east of home.

We were given a small limestone one-story building. With much help from the villagers, a good deal of scrubbing, scouring, and painting we converted this into a hospital—after anastomosing it to a second building next door—with bamboo. Ours is a three-room 25 mat hospital (the classification of hospitals by bed capacity does not apply here). One room of the hospital is used as living quarters for our Lao nurses, the second room triples as an operating room, delivery room, and sick call room. The third room is the ward—with bamboo mats on the floor. This is not so difficult on the patient but it plays havoc on an Anglo-Saxon physician's back pain. There is a veranda connecting these three rooms on the outside. Over this hospital flies the American flag. And for the record, we have painted our hospital Kelly green. Down the path a half-mile we were given a hut-of-a-house-on-stilts. It is now cleaned up, it is roomy, comfortable, warm, kerosene lamp-lit—and also, Kelly green.

If the reader could put this journal down, grab a PAA plane and fly 10,000 miles to Bangkok, Thailand, transfer and fly 400 miles north to Vientiane, and then drive eight hours through the jungle to us—we would offer you a cup of coffee and ask you to spend the day with us. Our typical day starts at dawn or thereabouts. (No one knows the exact time, clocks are a curse of civilization and you left that in Vientiane—anyway, why spend your life strapped to the watch on your wrist?) After breakfast of fried eggs (yesterday's pay) we would walk down the path to the hospital. There are already over 50 people from this and surrounding villages, as well as a sprinkling of brightly clothed tribal people such as the Kha, the Meo, and the Yao.

We first hold rounds on the ward. One of my men, Peter Kessey, works here with two Lao nurses. Today we have several cases of malaria, a lacerated Achilles tendon repaired last week, and a charred third-degree burn of the back and buttocks. Then a variety of machete-inflicted wounds of the legs, as these people must hack their meager existence from a savage jungle. Unfortunately we usually have some obstetrics problems, and yesterday we admitted a young lad named Iong, who had been mauled by a wild boar. We have six cases of fulminating pneumonia, which I know will respond magnificently to Combiotic. You will see a few patients severely dehydrated due to their dysentery. We give them saline solution by vein, bouillon tea, and Terramycin by mouth. They do well. We have a few nutritional problems of assorted types, but those with the severest cases have massive edema and heart enlargement—kwashiorkor.

When rounds are finished, sick call begins. Norman Baker and Dennis Shepard, my two American corpsmen, help me. Three Lao nurses also assist. We always work through the Lao, as this increases their prestige and education, and keeps us from blundering too badly over such words as "chep hua" which can mean "headache" or "criminally insane." The long, sometimes dreary, line seems endless. There are always wizened old people spitting out their last days and the remainder of their pulmonary tissue—pleading for help—not much I can do but palliation. There are children with beriberi and other deficiency diseases—due only to ignorance, not famine. Many kids carry their fungous scabby sores like a dirty stocking cap. We always have a bucketful of cases of chronic progressive sloughing ulcers of the lower extremities. The quick response of these to penicillin and good nursing care makes the diagnosis of yaws or other spirochetes likely. There are cases of malaria, pneumonia, bronchitis, scabies, and arthritis by the dozens. Sometimes some rather esoteric diseases present themselves, such as a tingling over the right knee cap that rapidly leaps into the nostril, and is present only when the sun sets every night. But the sun just now is straight overhead. When morning sick call is finished we find that we have had 62 people treated.

We return now to our house, which my boys have entitled "Uncle Tom's Cabin." We lunch on C-rations, rice, and corn (the latter two grow here, the former a necessary horror developed by the U. S. Navy in the exigency of war—but, giving credit where it is due, six months of just this, with an occasional gin and tonic, has kept my team in fine fettle, though a bit low on subcutaneous fat).

After lunch we load up the jeep with medical boxes and drive on the trails into the surrounding mountains to treat tribes who could not get down to Vang Vieng in the morning. Two members of the team hold this off-the-jeep's-tail-gate clinic until the sun is about ready to set. The other team members hold the afternoon classes in Vang Vieng. We have three courses. One in the local school for 300 children on hygiene and sanitation. The second is for 15 girls who come from 15 different villages—we are training them to be midwives. The third class is for the villagers themselves and is entitled "community development." It covers such topics as baby care, proper cooking, washing, and latrine building. (Let me speak coprologically for the moment. Whatever the etiology or nomenclature for diarrhea and its accouterments—Gyppy tummy, Jordan jumps, Baghdad belly, Yangtze rapids, Saigon two step, the Runs, or Trots—this ailment is the greatest internationalist of us all. Grin not at the mention of latrines!) Our education program is extremely important. We do not want to be a crash hit-and run mission. When we leave this area we want to leave something behind us. This program will accomplish much of this.

All the team members usually get back to the house a little after sundown. Each then enters a hugh bamboo construction which supports a 60-gal. barrel and a kerosene heater. Though it looks like an illegitimate union between a Texas oil derrick and the leaning tower of Pisa, it is our "shower." Regardless of the starboard list, the water is hot and the need great. After dinner we show a movie either in Vang Vieng or in a nearby village. On alternate nights we play the accordion and just "mi yam" or "visit." "Fantasia," Mickey Mouse, Donald Duck, and Oklahoma and her natural resources are all loved, but Bambi has conquered this part of Southeast Asia.

Tomorrow is a surgery day so we go to bed early, but the night is usually an interrupted one (there are not many doctors anywhere who do not have this problem), however, night calls here plunge the doctor into humanity at its bleating, suffering, stinking best—terror, disease, hunger, misery, different from anywhere else.

As in America, the end of the day finds the doctor reviewing his patients. What they are doing. Are they following your orders? Yes, as in America, your patients here will be taking your medicines and rubbing in your ointments. In America the doctor's opinion frequently rules supreme—the stethoscope and American doctor's magic reign supreme here also—during the day. But at the fall of night necromancy is potent. Herbs, portents, malicious and beneficient spirits are called forth to catalize your penicillin. Monkey's blood is drunk. "Blessed" strings of cotton are tied around an aching part. The incantations of the Chinese medicine men or the local witch doctor can be heard. A sorcerer is feverishly rubbing cow dung and beetle juice on the child's chest while his parents are smoking a stinking tobacco and blowing the smoke into the youngster's ears. And around their hut the yaws patients are sitting with those with whooping cough, on the floor where the old men are spitting. The mother with pocked cutaneous ulcers is holding a baby who is being sick at both ends at the same time. Chicken feathers are being waved beneath the nose of a woman whose pregnancy is past term, and garlic grease is being smeared over a sore—perhaps it will help the doctor's bacitracin ointment.

When the morning comes and many are cured, the credit will be divided between the two magics, the new and the old. These poor people are thrust into the chasm that yawns between these two. You might think, as I do, that we Americans are worrying a bit too much about the people we want to liberate from the godless tyranny of communism and are ignoring those we could liberate from the tyrannies of ignorance and disease. Medicine can be used as a weapon of foreign policy, and that is what we four are trying to do.

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GIN AND TONIC—A CAUSE OF DERMATITIS

To the Editor.—In recent years gin and tonic (quinine water) has become an exceedingly popular drink. To the old adage, "New drugs, new eruptions," we must now add a corollary: "New drinks, new eruptions." Many people do not tolerate quinine. Sensitivity to quinine may produce many reactions involving various tissues. For example, the eighth nerve reacts with tinnitus, deafness, and vertigo. Involvement of the optic nerve results in visual impairment with photophobia and diplopia. Headaches and fever are frequent manifestations of quinine idiosyncrasy. Dyspnea has been reported. The gastrointestinal tract can be involved, with resulting abdominal distress, nausea, vomiting, and diarrhea. By far the commonest tissue to react to this drug is the skin. The types of eruptions are many and varied. The mildest of these is a transient scarlatiniform of erythema. In addition to this, papular, vesicular, and even bullous eruptions have been described. The latter type of dermatitis can be very severe, and in some patients may even lead to death. A dose as small as 60 mg. of quinine may produce a severe systemic reaction.

We have seen a patient with a severe reaction that followed drinking quinine water. This 36-year-old man was admitted to the Samuel Merritt Hospital, Oakland, Calif., on June 7, 1955, because of a generalized eruption. On several occasions, in his childhood and in his teens, he had had a severe generalized eruption that he said was like scarlet fever, and he recalled that his attending physician had made that tentative diagnosis on several occasions. In his teens, he had a severe upper respiratory infection for which he was given some capsules, and he again developed a severe dermatitis. At that time, his physician told him that the capsules contained quinine and that he was sensitive to the drug. About 15 years ago he had a facial massage after which a toilet water was applied to his face. On the next day he developed a dermatitis with edema so marked that his eyes were closed, and lacrimation was profuse. It is possible that the toilet water contained quinine. Because the patient knew of his sensitivity to quinine, he had avoided drinking gin and tonic. On a number of occasions, however, he had imbibed various other gin drinks and had experienced no difficulty.

Two days before admission, he attended a cocktail party. The only type of drink served on this occasion was gin and tonic. During the course of three hours, he had five or six drinks Two hours later, he noticed a burning sensation in the groins and in his hands and feet This became worse as the evening progressed On the next morning he noticed edema and marked erythema in these areas In the next 24 hours the eruption spread to involve nearly all of his body Because of the extent and severity of the eruption, he was hospitalized

On admission he had a nearly universal dermatitis There was marked underlying edema so that the features of his face were masked There was marked swelling about his eyes Edema of his arms, legs, and feet was pronounced Superimposed on this was a brilliant erythema which in some areas assumed a purple hue There was vesiculation and weeping of the skin about his face On his back and trunk, in addition to the erythema, there were inflammatory papules, some of which had superimposed vesicles or fine pustules suggestive of a miliaria His palms and soles were covered with large bullae which coalesced in places to form large blebs His feet were more severely involved than his hands The patient had a temperature of 101 F (38 3 C) He was given colloidal baths followed by wet dressings of a 1 16 dilution of aluminum acetate solution, and a simple shake lotion was applied to the less extensively involved areas He was also given corticotropin intramuscularly and tripelennamine citrate by mouth On this regimen his condition improved, and he was discharged from the hospital after six days At the end of 16 days, the eruption had cleared entirely except for some fine scales about his hands and feet About two weeks later, a patch test was performed on the right upper portion of his back, using a 1% solution of quinine bisulfate, 15 drops (1 cc) was used to saturate a piece of gauze 1 cm square The patch was then removed in 48 hours, and the area showed a marked reaction, with a large bulla measuring 8 by 8 cm During the test, one drop ran down the patient s back and flank Along this line where the solution came in contact with the skin there was a streak showing erythema and vesiculation A similar patch test made with quinine water was negative probably because of the minute amount of quinine present

This patient showed an unusual reaction to the drinking of quinine water He was aware of his sensitivity to quinine and had avoided this preparation for years Assuming that he had six drinks of gin and tonic, he would have consumed about 24 oz of the quinine water It has been reported (Yohalen, S B Quinine in Tonic Water, Correspondence, *J A M A* 153 1304 [Dec 5] 1953) that some quinine water contains 30 mg of quinine per pint Therefore, it seems likely that our patient consumed about 45 mg of quinine during a three-hour period People who are sensitive to quinine may have severe reactions after the ingestion of a small amount of quinine as in this case Yohalen reported the case of a man who drank six to eight gin and tonics a day over a long period About seven weeks before consulting a physician he noticed severe tinnitus and a loss of hearing A tentative diagnosis of meningioma was made and surgery contemplated On a general examination before operation, the above history was obtained On ceasing to drink gin and tonic, the patient had a remission of all of his symptoms After this, a test dose of 150 mg of quinine produced a recurrence of his tinnitus and deafness It is well, therefore, to remember that tiny doses of quinine in a sensitive person may produce severe generalized reactions which can assume many different forms

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CASHEW NUT DERMATITIS

To the Editor –Dermatitis from the cashew nut is extremely rare in the United States, since the tree grows chiefly in tropical America, Africa, and the West Indies We have observed a patient in whom contact with the rind on two occasions produced a dermatitis Dr J C White devoted a chapter of his book (Dermatitis Venenata, Boston, Cupples and Hurd, 1887, pp 71-72) to cashew nut dermatitis and stated that the tree bears an edible nut, but that its rind or mesocarp contains an oily fluid called cardol that turns black on exposure to the air and acts as a severe irritant to the skin Prior to shipment, the dried nuts are roasted, causing the outer shell to burst open and release the oil, which takes fire, giving off fumes which may irritate the eyes and skin

Our patient, a 60-year-old woman, gathered raw cashew nuts in the shell while traveling in Ceylon That evening a severe inflammatory dermatitis of the hands, with scattered areas of inflammation on the face and neck, developed At the time she did not realize the cause of her dermatitis, and with treatment it partially subsided On her return to the United States, she still had remnants of the eruption and much itching There was still clear evidence of a contact dermatitis, but, in spite of intensive questioning, there was no clue as to the cause Under treatment the skin cleared completely within five days Two weeks later, while cleaning out one of her bags, she found 12 nuts that she had brought home with her and opened them to show to her family At this time she noticed that a large amount of oil was released Within two hours a burning sensation of her hands, face, and neck developed, and by the following morning they were markedly inflamed and swollen She then realized that both attacks occurred within a few hours after handling cashew nuts, and, when she came in for treatment, she informed us that she suspected that this was the cause of her outbreaks In view of the extensive travels of United States citizens, others may incur a similar eruption, one that is scarcely mentioned in the textbooks

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LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Health and Accident Insurance Common Meaning of "Hernia"—This was an action to recover hospital and medical expenses, under a health and accident insurance policy, together with statutory penalties and attorney's fees. A judgment in the trial court for the plaintiff was reversed by the Court of Appeal, First Circuit, so the plaintiff appealed to the Supreme Court of Louisiana.

The policy in question provided for the payment of hospital and medical expenses in the event of illness or accident. While this policy was in full force and effect, the plaintiff developed a diaphragmatic hernia that consisted of the projection of the stomach into the thoracic cavity through the opening in the diaphragm normally occupied by the esophagus and that was large enough to permit the stomach freely to enter into the thoracic cavity. This necessitated an operation at considerable expense to the plaintiff. The defendant insurance company refused to pay the plaintiff's claim because of article 4 of the policy that provided twelve consecutive months of continuous membership under this certificate before LPS will assume liability for payment of surgical or medical services, or hospital care for preexisting conditions, tonsils, adenoids, hemorrhoids, and hernia.

The question, said the Supreme Court, is whether the word "hernia" as used in the exclusion clause was to be construed in accordance with article 1,947 or in accordance with article 1,946 of the Louisiana Civil Code. Article 1,947 provides that technical phrases are to be interpreted according to their received meaning with those who profess the art or profession to which they belong, while Article 1,946 provides that the words of a contract are to be construed in their common and usual signification. In a strict, technical and medical sense, the court continued, a hernia is any protrusion consisting of an organ or part projecting through some natural or accidental opening in the walls of its natural cavity. Inguinal, femoral, umbilical, epigastric, and diaphragmatic hernias are a few that are associated with the abdomen. In its technical sense, "hernia" also includes ruptured intervertebral disc, cerebral hernia, hernia of the eye, hernia of the lung, and, in fact, any protrusion through an abnormal opening. In its ordinary, popular sense, however, "hernia" means simply a rupture or noticeable protrusion from some part of the abdominal cavity. The layman's common conception of a hernia, in fact, is a protrusion through the front abdominal wall.

The courts of this state, in construing medical words and phrases in health, accident, and sickness policies, have consistently held that such words and phrases should be understood in their plain, ordinary, and popular sense rather than in their scientific sense. The Supreme Court said that it did not think the parties here intended that "hernia" should include, for example, a hernia of the brain or a hernia of the lung. The exclusion clause concluded the court, should therefore be construed in accordance with article 1,946, and "hernia" should be given its popular and ordinary meaning of a rupture or noticeable protrusion through the front abdominal wall.

The defendant further contended, however, that, since "hernia" in its customary usage is generally identified with hernias relating to the abdomen, one of which is diaphragmatic hernia, the exclusion clause in the policy still applies, but the court held that a diaphragmatic hernia is still not a hernia within what it had found to be the common and ordinary meaning of the word. Accordingly, the judgment of the Court of Appeal, First Circuit, was reversed and set aside, and the judgment of the trial court in favor of the plaintiff was made the judgment of the Supreme Court. *Seguin v Continental Service Life & Health Insurance Company, 89 So (2) 113 (La, 1956)*

Workmen's Compensation Acts Tuberculosis as Occupational Disease of Nurse—This was an action for an award under the Pennsylvania Occupational Disease Act. From an order granting such award, the defendant hospital appealed to the superior court of Pennsylvania.

During the time the plaintiff was a nurse assigned to the maternity, medical, and surgical wards of the Carbondale General Hospital, she developed pulmonary tuberculosis. The hospital did not knowingly admit tuberculous patients. Evidence was presented, however, to show that during her tenure at the hospital the plaintiff had been exposed to patients with tuberculosis who had been admitted to the various wards. The Pennsylvania Occupational Disease Act as amended July 19, 1951, added tuberculosis as an occupational disease in the following words, "Tuberculosis in the occupation of nursing in hospitals or sanitaria involving exposure to such disease." The plaintiff contended that she was covered by this provision. The defendant, on the other hand, contended that the plaintiff did not develop pulmonary tuberculosis as a result of her employment by the hospital.

The compensation board found that the plaintiff was exposed to and became infected with tuberculosis while in the employment of the defendant hospital. The Occupational Disease Act provides "If it be shown that the employee, at or immediately before the date of disability, was employed in any occupation or industry in which the occupational disease is a hazard, it shall be presumed that the employee's occupational disease arose out of and in the course of his employment, but the presumption shall not be conclusive The board further found that the defendant had failed to rebut this presumption

The Superior Court, on appeal, pointed out that there was medical evidence in the case indicating that the rate of transmission of tuberculosis, a communicable disease, in any hospital is very low, but that the incidence of acquiring tuberculosis among general hospital personnel is higher than that of the general population because such personnel come in contact with unrecognized pulmonary tuberculosis and fail to take the precautionary measures that hospital personnel in tuberculosis sanitorium take as a matter of routine Under the Pennsylvania Occupational Disease Act, the court continued, a presumption arose that the plaintiff's pulmonary tuberculosis developed out of and in the course of her employment, and that such presumption was not successfully rebutted The court also held that the Occupational Disease Act must be liberally construed in favor of the employee and that the evidence amply supported the board's findings Accordingly the award in favor of the plaintiff nurse was affirmed *Neary v Carbondale General Hospital, 124 A 2d 470 (Pa , 1956)*

THE LEISURE CORNER

THE PLEASURES OF SAILING

Talk to a devotee of sailing and you will quickly learn that he does not regard it as just a run-of-the-mill sport Along with fun and excitement, he will tell you, it brings a deep-rooted satisfaction that other sports do not supply While sailing is sometimes erroneously regarded as a pleasure suited only to the proportions of a wealthy man's purse, this pastime can be enjoyed by anyone who will take the time to learn about the technique of choosing, buying, and fitting out a sailboat

Many doctors who have undergone a grueling year of medical practice find that sailing a craft, particularly a small boat, renders a most enjoyable and gratifying type of recreation There is no doubt that, for many, the instinct and longing to set sail on water is ready for release, but for some there may be diffidence about embarking on a new nautical experience

The more one sails and the more one sees of water, the stronger does the urge become to call one's own small craft 'home' 'Sea fever' is an incurable disease, and it becomes difficult to tell the precise moment when the victim succumbs, for its infectiousness comes on gradually The symptoms of 'sea fever' are many and varied They will appear when the sun shines through the windows of your office, and you begin to entertain visions of sunlit waters and to conjure up a picture of slender masts, or just at the moment you may be writing a medical history, you will find yourself thinking about the new bobstay or whether the sails should be tanned Contrary to the doctor's instinct for establishing a cure, there occurs an untamed desire to release this wonderful, incurable disease known as "sea fever' for the benefit of mankind, a disease from which its victims show little desire to recover

No two sailboats are ever alike, although they may be constructed by the same builder and built according to the same specifications Sailing like the practice of medicine, teaches confidence and humility, initiative and philosophy It teaches the physician sailor to be courageous, to take infinite pains At one moment the wind and the sea call for courage, determination, and cool judgment, at another, during a period of relaxation when you are anchored in the harbor, comes a peace of mind far beyond the comprehension of landsmen

In selecting a boat, two important circumstances should be considered first, the locality in which you will be sailing, and second, the amount of money you want to spend For example, if you live along coastal waters, a boat should be chosen based on its ability to take the ground easily It should have a center board that can be pulled up when you are sailing in shallow water to reduce the vessel's draft However, if sailing will take place on the south coast, one can do much better with a keel boat On the other hand, if intentions are to make reasonably long cruises, a totally different type of craft is required, unlike the ones used in sheltered waters or in class racing By and large, the size of a sailing craft is determined by the provisions of the pocketbook

A most popular type of craft is the 5-ton to 7-ton cruiser with a small cabin Certain basic principles of design should be kept in mind First, most boats are about three times as long as they are wide, with the length of the ship measured on the load water line Second, the draft of the ship, unless it is a centerboard craft, will be about one-fifth of the load water line The displacement tonnage of a ship is defined in terms of the amount of water displaced, and this, consequently, is the actual weight A small-sized boat has light displacement, indicating a fast vessel that will sail well, however, the accommodations will be small One of the most important factors associated with the purchase of a boat is its shape No matter how much money is spent on a boat, one with a badly balanced hull may prove dangerous

An engine is not an absolute necessity Any small, well-designed hull with a reasonable sail area is readily handled in the most crowded anchorage While an engine is undoubtedly useful at times, a sound boat should not be turned down categorically because it lacks an engine It is always possible to install an engine at a later period, contrariwise after a boat is sailed for a year or so without an engine, the decision may be to keep her engineless

Before a boat is purchased, it is important that the craft be properly examined, since there are many pitfalls for the unwary Even if the prospective purchaser has some knowledge and experience, enlisting the services of a professional boat surveyor will often bring to light faults that a layman would overlook A surveyor will be able to tell whether a boat is in sound condition, and he is able to judge whether it has a freak shape or appears well balanced If the sails are rotting and the hull is only in fair shape, he will probably advise against buying the boat However, if the hull is in first-class shape, he may advise the purchase of new sails

Many beginning sailors believe that it is better to commence learning the art of sailing on a very small boat This is a fallacy, a small craft does not assure easy mastery, nor is it safer than a large one A very small boat—a 12-ft dinghy, for instance—is so quick in its response to the helm and so easily capsized that it often proves to be tricky for the beginner The ideal craft for the new sailor has about a 4-ton to 5 ton yacht measurement with a moderate sail area In such a craft, the beginner will have time to think, moreover, if he does get caught in a blow, the vessel will be large enough to insure safety

Finally, when the boat has been purchased, it would be well to postpone sailing until you learn more about the craft Learn where the lines (rope) lead, find the bilge pump and make certain it works, and examine the ballast to see just where it is placed and how much there is Examine the anchor and the cable Find the compass Is there a foghorn? If not, get one A boat hook? Navigation lights? Are all the sails present, and are there clean, strong sailbags?

Next there is the matter of learning the various parts and fittings of the craft and becoming acquainted with their functions A number of simple navigation rules should be followed in order to enable the new navigator to conduct the craft from one place to another with safety The Golden Rule in navigation is summed up in these words Always know your ship s position ' To follow this precept, three items are essential a compass, the chart of the area in which one is sailing, and a set of navigational instruments, including a pair of parallel rules, dividers, a sharp pencil, a station pointer, and a course-setting protractor Without these basic requirements it is foolhardy to sail The larger the compass, the more accurate it is Actually, steering a boat by compass is a simple matter

In the art of helmsmanship lies the deepest pleasure of sailing The man at the helm is the focal point in sailing It is he who can best "feel" the boat, sensing the slightest shifts of the wind right through his hands while watching a course, either by a mark on the shore, by compass, or by a star in the heavens

Doctors, who ordinarily spend little time with their families because of the pressure of their work, have found sailing an enjoyable means for welding family ties Children relish the idea of going sailing with their fathers and being able to participate in some of the associated pleasures such as fishing and swimming Sailing levels the ages of two generations, leads to wholesome friendships among adults, makes a knowledge of geography and map reading necessary, presents an opportunity for healthful exercise, and produces endless subjects for conversation

If a doctor cannot get enough of sailing during the warm-weather months, iceboating presents a seasonal variation for the more energetic members of the medical profession Nowhere has iceboating been followed more diligently and with such enthusiasm as in the United States and Canada The Great Lakes region offers thousands of miles of frozen water suitable for iceboating

At first, the sensation of iceboating is that of gliding through space, with a feeling associated with flying The mere notion of being conveyed through the air in a boat, at a rate equal to the speed of a fast train, will stir the younger contingent of the medical profession, if not the middle-aged People who have experienced the extraordinary velocity of an iceboat declare that, when the initial apprehension of participating in lightning-like speeds is overcome, fascination with the sport grows literally by leaps and bounds

MEDICAL FILM REVIEWS

Block Dissection and Pneumonectomy for Bronchogenic Carcinoma, Left Side 16 mm, color, silent, showing time 28 minutes Prepared by John F Higginson, M D, Portland Ore Produced in 1955 by and procurable on loan from Medical Illustration Service Veterans Administration Hospital, Portland, Ore

The author's technique in performing a radical pneumonectomy and mediastinal node dissection en bloc is demonstrated This technique includes dissection from the cupola of the chest to the diaphragm, including resection of the pericardium The purpose of the film is to demonstrate the radiographic findings and the surgical pathology of bronchogenic carcinoma The surgical technique is excellent The addition of a sound track to this film would be desirable Although it is well titled, the film needs additional comments and explanations during the demonstration of the surgical technique The photography is well done The film can be recommended to surgeons interested in this procedure

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Clinical and Anatomic Features in 500 Patients with Fatal Acute Myocardial Infarction K T Lee, W A Thomas, E R Rabin and others Circulation 15 197-202 (Feb) 1957 [New York]

Autopsy was performed on 500 patients who died during the period from 1910 to 1954 from acute myocardial infarction Of these, 429 (86%) died within 3 weeks after the onset of symptoms Only 50% gave a history of previous angina pectoris It appears, therefore, that fatal acute myocardial infarction may occur without previous warning Chest pain was the chief complaint of 64% of the 429 patients Anatomic evidence of previous myocardial infarction was present in 239 patients (47 9%) The clinical and anatomic aspects of these patients were similar to those in patients without previous myocardial infarction The correct diagnosis of this disease had not been made in 97 patients (19 4%) during life Complicating features such as major operations often obscured the clinical findings in these patients The only anatomic characteristic found to be different, as compared with those in patients whose conditions were diagnosed correctly during life, was the smaller size of the myocardial infarct Chest pain was much less common

Cretinism Maccarini H Prensa med argent 43 2805-2814 (Sept 14) 1956 (In Spanish) [Buenos Aires]

Endemic cretinism is due to congenital athyreosis It occurs frequently in goiterous regions and more frequently in men than in women The condition is marked by arrested physical and mental development, dwarfism, deformities of the bones and of the soft parts of the body, and disorders of the sense organs and of certain groups of glands The disease starts at birth with early symptoms of athyreosis The arrest of physical development becomes more evident with the increasing age of the patient A diagnosis is made by the following data (1) the typical dwarfish deformed, and idiotic aspect of the patient, (2) thick, dry, wrinkled skin, (3) lateness in learning to walk and talk, (4) chronic and persistent constipation, (5) a discrepancy between the real and apparent age of the patient, and (6) roentgenographic signs of retarded ossification of the epiphysis of the tarsus, wrist, and femoral head The treatment consists of administration of dried thyroid extract, which casuses great improvement of the physical and mental condition provided it is given early in the course of the disease The drug is given according to Mean's dosage schedule Two cases are reported In 1 patient the symptoms of athyreosis appeared when the infant was 7 days old The treatment with thyroid extract was immediately started and has been given to the patient throughout her life When last seen the patient was 12 years old Her height and weight were normal She had repeated the 1st and 2nd grades and was in the 3rd grade Her behavior was normal Her IQ was 90

The 2nd patient had sporadic cretinism She was seen for the first time at the age of 9 years and had typical symptoms of the condition Her height and weight correspond to those of a 3-year-old child Ossification of the epiphysis of the tarsus, wrists, and femoral head corresponded to that in a child of 1 year She is an idiot Treatment with thyroid extract was started According to the literature, the administration of thyroid extract late in the course of cretinism may cause a slight improvement in the physical development of the patient, but mental condition cannot be improved Iodide therapy given early in the course of cretinism may also cause some physical and mental improvement, but, when given late, the physical development may improve so that the patients are transformed from inoffensive idiots into troublesome ones

Myocardial Infarctions at the Queen's Hospital, January 1, 1950 to January 1, 1955 H C Gotshalk Hawaii M J 16 273-274 (Jan -Feb) 1957 [Honolulu]

Of 433 patients with myocardial infarction treated at Queen's Hospital (the largest private general hospital in the Territory of Hawaii) in a 5-year period, 131 (30%) died Of the 156 patients who received anticoagulant therapy in the form of heparin or dicumarol, 24 (15%) died, whereas, of the 277 who were treated only with bed rest, oxygen and other symptomatic measures, 122 or 44% died The author concludes that properly controlled and administered anticoagulant therapy produces better results than is achieved without these drugs

Medical Versus Surgical Management for the Complication of Hemorrhage in Duodenal Ulcer R S Boles Jr, W J Cassidy and S M Jordan Gastroenterology 32 52-59 (Jan) 1957 [Baltimore]

Of 266 patients with bleeding duodenal ulcer, 132 were treated for their 1st hemorrhage and 134 had a history of previous hemorrhage Of the 266 patients, 141 were treated medically and 125 were treated by subtotal gastrectomy Of the 141 patients who were

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library, American Medical Association Periodical files cover 1948 to date only and no photoduplication services are available No charge is made to members, but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them followed up for an average period of about 4½ years, 38 (26 9%) had a subsequent hemorrhage Ninety-five of the 141 patients were treated for their first hemorrhage, and 26 (27 4%) of these had a subsequent hemorrhage Of 46 patients treated for a recurrent hemorrhage, 12 (26 1%) had a subsequent hemorrhage Of the 125 surgically treated patients who were followed up for an average period of 4 years, 19 (15 2%) had a subsequent hemorrhage Thirty-seven of the 125 patients were operated on for their first hemorrhage, and 4 (10 8%) of these had a subsequent hemorrhage Of 88 patients operated on for a recurrent hemorrhage, 15 (17%) had a subsequent hemorrhage

Thus, with both medical and surgical treatment, recurrent hemorrhage may be expected during the average follow-up periods of 4½ and 4 years The fact that the average follow-up time for the medically treated patients was a half year longer than for the surgically treated allowed more time for recurrent hemorrhage to occur in the medically treated patients The history of multiple versus single hemorrhage appeared to have no prognostic significance in the medically treated patients A somewhat higher percentage of subsequent hemorrhage was found among surgically treated patients in the multiple-hemorrhage than in the single-hemorrhage group of patients who bled after treatment, those who had had surgical treatment bled subsequently in a somewhat earlier period than did those who had had medical treatment The statistics of ulcer recurrence show that the duration of follow-up is in direct ratio to the number of recurrences In the average follow-up periods of about 4 years for both the surgically and medically treated groups, the recurrence rate of hemorrhage was disappointing to the patient and both disappointing and challenging to the physician

A Clinical Evaluation of Tubeless Gastric Analysis R J Bolt, T G Ossius and H M Pollard Gastroenterology 32 34-41 (Jan) 1957 [Baltimore]

Segal's azure A–cation exchange-resin test for the qualitative detection of free hydrochloric acid was carried out in 184 men and 9 women between the ages of 19 and 80 years Ninety of these 193 persons were also subjected to gastric intubation using 0 5 mg of histamine base parenterally as the stimulant and Topfer's reagent for the determination of free hydrochloric acid They, thus, were tested by both the tube and tubeless methods The tubeless test was carried out in 132 of the 193 persons in the course of a routine annual check-up and the remaining 61 were hospitalized The persons tested did not have breakfast They were given a capsule of 0 5 Gm of caffeine sodium benzoate in one-half glass of water and were asked to void 1 hour later and to save this urine in a bottle marked control A suspension of granules of an azure A–ion-exchange compound (containing about 45 mg of azure A per gram of carboxylic cation-exchange resin) in one-fourth glass of water was given, and 2 hours after taking it the person tested voided and saved the entire quantity of the urine in a bottle labelled 'urine sample

The 2-hour urine specimen, but not the control specimen, of 129 (67%) of the 193 persons tested was blue after both specimens had been diluted with water to 300 cc , denoting the presence of free hydrochloric acid in the stomach The blue color in the 2-hour urine specimen became apparent only after boiling in 42 (21%) of the persons tested Comparison with color standards after boiling was necessary with only 8 specimens (4 5%) in order to confirm the presence of free hydrochloric acid Of the 193 persons tested, 179 (93%) were, therefore, considered to have free hydrochloric acid in the stomach Unidentified pigments in 1 2-hour urine specimen prevented adequate color comparison In 13 (6 7%) specimens, no color or a blue color less intense than the 0 3-mg standard after boiling was shown, and this signified achlorhydria Eighty (89%) of the persons in whom the gastric secretory status had been determined by the standard gastric intubation procedure were shown to be acid secretors, and 76 (95%) of these showed evidence of free hydrochloric acid secretion on a single tubeless test Three (3 8%) of the 80 known acid secretors failed to show acid with a single tubeless test and there was color interference in the tubeless test in 1 Ten of the 90 persons were shown to have persistent achlorhydria by the histamine–gastric tube test The 2-hour urine specimens of the 10 persons remained lighter in color than the 0 3-mg standard, indicating achlorhydria

The azure A–cation-exchange-resin test for the presence of free hydrochloric acid is a simple test applicable to surveys of large groups of persons The reliability of the test in distinguishing those persons who do not secrete hydrochloric acid is supported by the authors' results and those reported in the literature The substance used in performing the test has so far proved to be relatively free of serious side-effects The use of the test in patients with severe renal disease gastric obstruction diarrhea and malabsorption syndromes requires further evaluation but the test will probably prove to be unreliable under such circumstances

Primary Aldosteronism Report of a Case and Discussion of the Pathogenesis D Fine, E Meiselas J Colsky and others New England J Med 256 147-152 (Jan 24) 1957 [Boston]

A 33-year-old patient was admitted to the Maimonides Hospital of Brooklyn N Y, in February, 1952 The finding of muscle weakness hypertension, hypokalemic alkalosis and hypernatremia, high urinary salt-retaining activity, and an adrenocortical adenoma with marked aldosterone-like activity led to the diagnosis of primary aldosteronism The symptomatology and the renal-metabolic defects were less intense in this patient than in previously reported cases The endocrine disorder was associated with symptoms of rheumatic heart disease The patient was admitted repeatedly to the hospital At his 13th and last admission in August, 1954, a final attempt was made to locate an adrenal mass by x-ray study before surgery The patient refused to permit further studies He died suddenly several days after his discharge from the hospital. Autopsy showed a tumor completely within the cortex of the left adrenal gland. Bioassay of an extract of the adrenal adenoma revealed a sodium-retaining activity of 111,000 equivalents of gamma desoxycorticosterone acetate (DOCA) per kilogram of tumor tissue. These observations suggest, that, as proposed for DOCA administration, the disturbances of primary aldosteronism derive in the first instance from accelerated tubular reabsorption of sodium that causes augmented excretion and negative balance of potassium. Surgical removal of hyperfunctioning adrenal tissue remains the only satisfactory treatment for primary aldosteronism.

SURGERY

The Treatment of Massive Hemorrhage from Gastric or Duodenal Ulcers. E. Ungeheuer. German M. Month 1:357-359 (Dec.) 1956 (In English) [Stuttgart, Germany].

Of 125 patients with peptic ulcer who were operated on because of massive gastric hemorrhage, 11 (8.8%) died. Of 51 patients who were operated on early, i. e., 24 hours after the onset of bleeding, 2 (3.9%) died. Of the remaining 74 patients, who were operated on late, i. e., from 3 to 10 days after the onset of bleeding, when conservative treatment had failed to prevent a second hemorrhage, 9 (12.1%) died. Although these results are weighted by the higher case fatality rate of the patients who were operated on late, they are better than those of purely medical treatment reported in the literature, with case fatality rates between 2.5 and 31%. A case fatality rate of 9% is to be considered as a clear sign of the superiority of surgical over conservative treatment.

Another advantage of surgical intervention is the permanency of the result obtained. Medical treatment does not banish the risk of recurrence of either the ulcer or the hemorrhage, nor does it eliminate the possibility of perforation or a malignant degeneration of a chronic ulcer. After a Billroth 2 operation, which is the method of choice in massive hemorrhage, these risks are permanently disposed of at once. Gastrectomy also is justified in patients with massive intestinal hemorrhage in whom laparotomy fails to reveal a palpable ulcer of the stomach or duodenum and in whom the possibility of bleeding from esophageal varices has been excluded by previous x-ray examination. Endotracheal anesthesia was preferred, and great importance was attached to a high oxygen concentration in the anesthetic mixture. The patient's blood pressure was never lowered artificially in order to prevent exposure of the anemic patients to the risks of further tissue hypoxia.

Considering that 80 to 90% of massive hemorrhages are from chronic ulcers and that these patients are particularly likely to have recurrent hemorrhages, with fatal results in 70 to 75%, it is clearly advisable to remedy this condition once and for all by early operation. This obviates the necessity of operating under unfavorable conditions on an exsanguinated patient when a few days earlier operation could have been performed without any great risk. To a young patient without a history of ulcer and with a mild hemorrhage that stops within a few hours, the customary medical treatment can be given just as competently by the surgeon, who will be ready to operate if the necessity arises. In practice, medical management alone is hardly ever sufficient. The widely divergent views about treatment should, therefore, be revised in the light of the favorable results of early operation.

Esophageal Diverticula. R. P. McBurney. South. M. J. 50:145-150 (Feb.) 1957 [Birmingham, Ala.].

While diverticula of the esophagus are not common, they are increasing in frequency with the increasing age of the population. Pulsion diverticula usually occur in the pharyngoesophageal area and less frequently in the epiphrenic area. They apparently are produced by pressure from the inside of the esophagus that causes herniation of the mucosa through the muscular walls. The sac of such a diverticulum is composed of mucosa, submucosa, and only vestiges of attentuated muscle. The traction diverticulum contains all the layers of the esophageal wall and is caused by inflammatory tissue pulling on the esophageal wall. Such diverticula usually are found in the midesophagus near the tracheobronchial lymph nodes. In the author's series of 57 patients, 32 had the pulsion type of pharyngoesophageal diverticula, 17 had a midthoracic traction type of diverticula, and 8 had a epiphrenic diverticulum. Most patients were in the 5th, 6th, and 7th decades of life.

Symptoms varied with the location of the diverticulum. In the pharyngoesophageal type the most common symptom was dysphagia. Weight loss, dehydration, regurgitation of food and liquid, a sense of fulness, or mass in the neck and substernal pain all were noted frequently. Repeated episodes of aspiration pneumonitis was a presenting complaint in 2 cases. Some patients complained of a gurgling noise in the neck, others that the pillow was wet with saliva and food when they awoke in the mornings. A few had coughing spells that awakened them at night. The midthoracic traction diverticula were, as a rule, asymptomatic. Five of the 17 patients with this type, however, complained of dysphagia. The patients with epiphrenic diverticulums complained mainly of epigastric and substernal distress, nausea and vomiting, dysphagia, and abdominal distention.

The x-ray examination is the keystone of correct diagnosis and is positive in nearly all cases. Esophagoscopy has been strongly advised in the past, but in recent years there has been a tendency to do fewer such examinations. The danger of perforation outweighs the value of the possible information obtained. Treatment was surgical in 18 patients; in the remaining 39, operation was either not advised or refused. Some of the patients in whom operation was not advised were seen in earlier years when it was thought that repair of esophageal diverticulum was dangerous. Many of these patients would now undoubtedly be advised to have surgical treatment. Of the resections for pharyngoesophageal diverticula 7 were 2 stage and 6 were 1 stage, and 2 patients had the 1st stage of a 2-

stage operation with gastrostomy The 2 resections for traction diverticula and the 1 for epiphrenic diverticulum were all 1-stage procedures The author prefers the 1-stage diverticulectomy

Management of Acute Empyema Thoracis P L Rai Punjab M J 6 171-184 (Nov) 1956 [Jullundur City, India]

Rai believes that empyema cannot be cured without evacuation of the pus The sulfonamides and penicillin prove useful in fighting the infection, but they must be combined with aspiration or surgical drainage The author discusses the indications for and the techniques, as well as the advantages and disadvantages, of the 3 methods used in the 96 patients with acute empyema treated by him between 1941 and 1955 Of these patients 12 discontinued treatment against medical advice Forty-two of the remaining 84 were treated by aspiration and chemotherapy, with the result that 29 were cured, the process became chronic in 3, and 10 died The closed method of intercostal drainage was used in 10 patients, 7 of these were cured, the empyema became chronic in 1, and the other 2 died An open operation with rib resection was performed on 32 patients, 25 were cured, the condition became chronic in 2, and 5 died

Severe Hemorrhages from the Esophagus, Stomach and Duodenum J Vandenbroucke Belg tijdschr geneesk 13 121-128 (Jan 15) 1957 (In Flemish) [Leuven, Belgium]

In a series of 137 patients with severe hemorrhages of the esophagus, stomach, and duodenum, the hemorrhage was due to gastric carcinoma in 9 patients, ulcer of the stomach in 14, duodenal ulcer in 48, and portal hypertension in 27 patients Sixteen of the 18 deaths occurred in these 98 patients The 9 deaths among the 23 patients with portal hypertension and cirrhosis occurred in patients ranging in age from 39 to 63 years at the time of death The 4 deaths among the 14 patients with severe hemorrhage from ulcers of the stomach occurred at from 51 to 61 years of age The deaths of the other 5 patients occurred at rather advanced ages Unusual causes of severe upper gastrointestinal hemorrhages were observed in 14 of the 137 patients These included a woman with a gastric polyp, a 28-year-old man with a pulmonoesophageal fistula, a 53-year-old man who had periarteritis nodosa and duodenal ulcer, 3 patients with carcinoma of the pancreas (whose severe hemorrhages were due to perforation into the stomach or duodenum, ulcer, or thrombosis of the splenic vein with portal hypertension respectively), a woman with angioma of the stomach, a patient with carcinoma of the gallbladder, 2 patients with hiatal hernia, and 3 patients with hemorrhagic gastritis

Hemorrhagic diathesis seems rarely to be responsible for severe hemorrhages of the upper gastrointestinal tract In 25 of the 137 patients (18%) the origin of the severe hemorrhages was not found In other statistical reports this percentage ranges from 10 to 25% The author emphasizes that early roentgenologic examination and gastroscopy will reduce this percentage These techniques will also reveal some of the rare causes of the severe hemorrhages, which, in many instances, will be amenable to surgical therapy In patients over 50 years of age who have severe bleeding from duodenal or gastric ulcers, medical treatment will not always be effective so immedicate surgical treatment will be necessary This was the case in 7 of 62 patients in this series A gastrectomy is usually advisable in severe hemorrhage from a postbulbar ulcer Transfusions may have to be given in generous amounts, but they are unnecessary when the hemoglobin level is above 65% and the systolic blood pressure above 100 mm Hg In patients with bleeding gastric or duodenal ulcers, the author prefers early and continued feeding to starvation A blind gastrectomy (without localization of the cause of bleeding) may be advisable Resection of the esophagus above the cardia with ligation of the varices was life-saving in 3 patients with threatening hemorrhages from esophageal varices caused by portal hypertension

Double Fractures of the Leg 25 Cases P Boutin Rev chir orthop 42 647-663 (No 5) 1956 (In French) [Paris]

The author reports on 5 recent cases of double fractures of 1 or both bones of the leg treated primarily and on 20 cases of double fractures of 1 or both bones of the leg that were given secondary treatment for poor reduction, pseudarthrosis, union with deformity, or osteitis Most of the 25 patients had suffered violent injuries by direct impact in parachuting or falling from a running train or from a scaffold or in the war One-third of the patients had associated fractures of the femur, the opposite leg, the upper extremities, or the cranium The double fracture of the leg presented itself as an upper oblique fracture in the upper third of the leg and as a lower transverse fracture at the point where the lower third of the leg begins and the median third of the leg ends, the 2 fracture areas being separated by a diaphysial intermediary fragment of 10 or 12 cm There was extensive detachment of the periostomuscular cylinder that ensheathes the intermediary fragment

Fractures of this type are rare, and their treatment is difficult because of a tendency to pseudarthrosis Details are given concerning only the 20 patients who had been treated elsewhere and were given secondary treatment by the author Seven of the 20 had received primary treatment by osteosynthesis, and 13 had been treated with a plaster cast after reduction of the fracture Pseudarthrosis had occurred in 11 patients in 13 fracture areas Osteitis had occurred in 10 patients and union with deformity in 13 Five patients had pseudarthritis, osteitis, and union with deformity simultaneously Amputation had to be performed in 2 of the 5 patients and will probably be unavoidable in a 3rd The author recommends that, in patients with closed doubled fractures consisting of oblique upper fracture and transverse lower fracture, nailing combined with screws be used for the upper fracture and a bone graft and screws for the lower fracture In patients with oblique upper and lower fracture, nailing combined with screws should be used for both

In patients with transverse upper and lower fractures, nailing should be combined with a long bone graft and screws used as a bridge if the intermediary fragment is short, a graft with screws should be applied to each of the double fractures if the intermediary fragment is to long to be bridged This method of treatment, whether used for a recent closed double fracture or for one with pseudarthrosis, always resulted in healing within the normally required time and with anatomic axes Walking could be resumed fairly early because large nails of femur type that penetrated through the prespinal surface of the tibia and fitted perfectly were used (drilling is indispensable)

Although a satisfactory correction of the general axis of the leg might be obtained with relative ease by immobilization in a plaster cast, it is difficult to obtain simultaneously a satisfactory osseous coaptation at the level of each of the double fractures—a result that is, however, of greatest importance for the prevention of pseudarthrosis Traction exerted by the quadriceps muscle on the short upper fragment makes reduction difficult It is, therefore, necessary to use osteosynthesis by bone graft and screws rather than a plaster cast in most closed doubled fractures It was used for the treatment of 3 of the 5 recent double fractures In patients with open double fractures, the surgical treatment of the external wound should be combined with reduction, followed by strict immobilization with the aid of a plaster cast Osteosynthesis should be considered only after reduction has failed

Reflections on 40 Patients with Cancer of the Ascending Colon Statistical Study J Seneque and C-L Chatelin J chir 73 5 21 (Jan) 1957 (In French) [Paris]

All but 6 of the 40 patients whose records are reviewed here were between 50 and 80 years of age Although the sex incidence of cancer of the ascending colon is usually about equal, this group included 26 women and 14 men While diarrhea, intestinal hemorrhage, and tumor of the colon are generally regarded as the characteristic triad of this type of cancer, the authors found that the symptoms in their patients were usually different Refractory diarrhea led to examination in only 3, and intestinal hemorrhage was present in only 1 of the 40 patients Tumor in the right flank was observed in 19 of the patients, in 9 of these it was no longer resectable, in 4 although the tumor was voluminous and fixed by adhesions it could be extirpated, and in 6 the tumor was still mobile, being the size of an orange in 2 but small and difficult to detect in the other 4 Pain was present in all but 1 of the 40 patients Roentgenologic examination, although important in the diagnosis of tumor of the ascending colon, is not widely used

The cancer of the ascending colon was revealed in 28 of the 40 patients by acute or chronic obstruction, in 6 patients by perceptible tumor, and in 5 by peritoneal inflammation, in 1 patient the tumor was silent A 1-stage hemicolectomy was performed in 27 of the 40 patients, a 2-stage hemicolectomy in 4, palliative operations in 8, and an exploratory laparotomy in 1 There were 3 surgical deaths 1 after the exploratory laparotomy, 1 after a palliative operation, and 1 among the 27 patients undergoing a 1-stage hemicolectomy Seven of the 26 who survived the 1-stage hemicolectomy could not be followed up, and 8 of the remaining 19 have died In 6 of the 8 who died, the lymph nodes had become invaded, indicating that lymph node involvement signifies an unfavorable prognosis Eleven of the 19 were still living In the 7 who survived the palliative operations, the survival period at the time of writing had been relatively short, only 1 being alive after 10 months Of the 4 who underwent hemicolectomy in 2 stages, 3 have died

NEUROLOGY & PSYCHIATRY

Epidemiology of Nonbacterial Meningitis (Serous Viral Meningitis) in the Governmental District of Dusseldorf, Northern Rhine–Westphalia, 1956 C L P Traub and J Posch Medizinische, no 4, pp 139-143 (Jan 26) 1957 (In German) [Stuttgart, Germany]

An epidemic of nonbacterial meningitis in the form of serous viral meningitis of partly pandemic type occurred in the district of Dusseldorf, Germany, between June and September, 1956 The district consists of 14 urban and 9 rural subdistricts and has a population of about 5 million The total number of cases of abacterial meningitis was estimated to be 45,000 Statistical data concerning the age and sex of 451 patients were available Of these, 305 (67 75%) were infants or children and 146 (32 25%) were over 16 years of age Boys predominated in a ratio of 2 1 among the 305 children Women predominated among the adults The age of 73% of the adults was 30 years or less Vomiting, severe frontal and supraorbital headache, mild meningeal irritation or mild stiffness of the neck, and a temporary rash similar to that of rubella on the face and thorax were the main symptoms An initial 2-day phase with temperature elevations to 104 F (40 C) was followed, after an afebrile interval of from 5 to 8 days, by a second period of fever of from 1 day's to 4 days' duration The meningitic symptoms predominated in this second period but subsided rapidly after lumbar puncture, which was performed mainly for diagnostic reasons The spinal fluid was fairly clear, but from 2,400 to 5,000, predominantly mononuclear, leukocytes per cubic millimeter were present The total protein level varied from 40 to 60 mg per 100 cc, and the reaction to Pandy's globulin test was weakly positive Complications did not occur, and there were no deaths The incubation period varied from 5 to 7 days

A previously unknown virus was isolated from the feces, sputum, and spinal fluid of the patients Complement-fixation tests for poliomyelitis, mumps, lymphocytic choriomeningitis, and influenza A virus in the blood and in the cerebrospinal fluid were negative The patients were given a proprietary, combined preparation of streptomycin and penicillin (Supracilline) and tetracycline to prevent secondary infections One hundred seventy-five cases of poliomyelitis were reported in the district of Dusseldorf in the same

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period Epidemiologic connections between the serous viral meningitis and the poliomyelitis could be neither definitely established nor excluded

Epidemic Occurrence of Nonbacterial Benign Meningitis G Hennemann Medizinische no 4, pp 143-146 (Jan 26) 1957 (In German) [Stuttgart Germany]

An epidemic of nonbacterial meningitis occurred in Mainz and in several other cities and villages in the neighborhood of Mainz between July and October, 1956 The author reports on 37 men (58%) and 28 women (42%) between the ages of 14 and 50 years with nonbacterial meningitis The predominance of men might be explained by the fact that the men, because of their occupational activities, had more contact with the pathogenic agent than the women Most of the men were between the ages of 20 and 30 years, but there was still a high incidence of the disease among women between the ages of 30 and 40 The disease was characterized by a sudden onset, with fever, severe frontal headache, pain in the neck, recurrent vomiting, feeling of pressure in the orbits, severe back pain, and sweating Stiffness of the neck was observed in 90% of the patients and was most pronounced in the first 4 to 6 days of the disease The temperature varied from 100 4 F (38 C) to 102 2 F (39 C) The sedimentation rate was increased in two-thirds of the patients The leukocyte count was between 5,000 and 10,000 per cubic millimeter Definite leukopenia was rarely observed A mild lymphomonocytosis was found in about 40% of the patients The spinal fluid pressure was increased in most of the patients and in some above 300 mm H_2O The spinal fluid was clear in some patients and turbid in others, depending on its cell content Pleocytosis was pronounced The number of cells varied from 500 to 24,000 per cubic millimeter Mononuclear cells predominated in 60% of the patients Polynucleosis was observed in the early phase of the disease in one-third of the patients, but it became lymphocytosis in the course of the disease The increase in the total protein content of the spinal fluid was less pronounced and was below 3 Kaffka units in most patients The sugar content was not increased The patients were given antibiotics, sulfonamides, and cortisone, without notable effect Temperature was restored to normal by lysis or crisis after from 5 to 10 days The general condition and the meningeal irritation improved simultaneously A second rise of temperature with worsening of the findings in the spinal fluid for about 2 days was observed occasionally, but more than half of the patients were free of complaints after 2 weeks The patients were discharged from the hospital after 3 or 4 weeks, and at this time the number of cells in the spinal fluid was below 50 per cubic millimeter in 75% of the patients and not more than a 100 per cubic millimeter in the rest Complications were not observed The causative virus was not identified Differential diagnosis between nonbacterial meningitis and poliomyelitis was difficult in the initial stage of the disease and became possible only when the pronounced increase in cells in the spinal fluid was found not to be associated with paralysis

Dr. Robert Heilig Library

PEDIATRICS

Typhoid in Pregnancy as Cause of Neuropsychiatric Disorders in Infants Three Cases M Schachter Rev españ pediat 12 665 670 (Sept -Oct) 1956 (In Spanish) [Zaragoza, Spain]

Typhoid in the course of pregnancy may be the cause of neuropsychiatric disorders in the infants Three cases are reported in children of 5, 5, and 3 years of age In the 1st case, the mother had typhoid during the 1st month of pregnancy The child was born at full term When the child was observed at the age of 5 years, she showed deformities of the ears, anisodactylism and isodactylism, and signs of an operation for correction of palatine fissure and harelip She was mentally retarded and had severe behavior disorders The other 2 mothers had typhoid fever when they were in the 5th month of pregnancy Both children had convulsions One of them had symptoms suggestive of whooping cough for 9 months Both children had severe behavior disorders

The Follow-up Study of Hemangiomas of the Skin Treated and Untreated W Falk and D Levy A M A J Dis Child 93 165-172 (Feb) 1957 [Chicago]

Of 23 boys and 37 girls between the ages of 1 month and 4½ years with the strawberry type of vascular nevus of the skin, 52 had a single nevus each, 5 had 2 nevi, 2 had 3 nevi, and 1 had 4 nevi, a total of 72 lesions Fourteen of the 72 lesions were treated with radium because erosions and ulceration with hemorrhage or severe disfigurement of the body part were likely to occur The other 58 were left untreated The 60 patients were reexamined after a lapse of from 5 to 8 years Whenever the lesion was left to follow its natural course, it resolved without any residual scarring, 54 of 58 nevi had disappeared Most vascular nevi fare best when left to their natural course No active therapy should be undertaken except for nevi that are cosmetic blemishes or that cause functional impairment The question of therapy of the latter 2 types of lesions depends on the position and the size of the hemangioma and the general health of the child In most of these nevi early irradiation is to be advised and carried out to prevent ulceration and more severe functional impairment later in life

Three Cases of Eosinophilic Granuloma of the Pelvis in Children L Nitter Acta Radiol 46 731-738 (Dec) 1956 (In English) [Stockholm]

Reviewing earlier reports on eosinophilic granuloma, Nitter points out that, while Lichtenstein and Jaffe believed that eosinophilic granuloma is a disease *sui generis*, most authors now consider that the condition is related to Letterer-Siwe's disease and Hand-Schuller-Christian disease, all being different stages of the same disorder of the reticuloendothelial system Cases have been reported demonstrating transition from eosinophilic granuloma to Hand-Schuller-Christian disease The disease occurs more frequently in girls than in boys, 2 of the 3 patients reported here were girls aged 2½ and 2 years, respectively, and the other was an 18-month-old boy In all 3, the lesion was situated primarily in the pelvis, and in 2 of them it remained solitary The roentgenographic findings were typical in all of them The treatment was difficult by reason of the location One of the 2 girls and the boy were treated only with roentgen irradiation, after the histological diagnosis had been made, in 1 case by biopsy and in the other from tissue removed by scraping

In the third case surgical removal of the affected tissue was performed, but marked progression necessitated roentgenotherapy 6 months later Surgery has been employed to prevent irradiation damage to the ovaries In the first girl, there were several reasons for administering roentgenotherapy, and an attempt was made to avoid irradiation of the ovary as far as possible by using a small field and directing the beam tangentially In this girl and in the boy roentgenotherapy gave good results with rapid healing No new lesions were detected after 4 and 3 years, respectively No inhibition of longitudinal growth was observed in these 2 patients The radical operation performed in the third patient may possibly have contributed to the dissemination of the disease Subsequent roentgenotherapy had a favorable effect in this patient Further observation is needed to ascertain whether this is simply a case of multiple lesions or whether there will be transition to another phase of the disease The sedimentation rate was still high This and the newly detected localizations indicate that the disease was still active

Research on the Myelograms of Full-Term, Premature, and Postmature Babies During the First 10 Days of Life P Nicola Minerva pediat 8 1454-1468 (Nov 24) 1956 (In Italian) [Turin, Italy]

The myelogram of 5 full-term, 5 premature, and 5 postmature babies was studied on the 1st and on the 10th day after delivery The babies of the 1st group weighed from 3,050 to 3,750 Gm , their condition remained good throughout the period of observation, and they were all breast fed The babies of the 2nd group were born after from 29 to 32 weeks of gestation Their weight was from 1,200 to 1,800 Gm , and their conditions were good The babies of the 3rd group were born after from 42 to 44 weeks of gestation Their weight was 2,500 to 3,350 Gm , and 4 showed signs of asphyxia at birth They were all breast fed, and their conditions remained satisfactory although they showed symptoms caused by the prolonged pregnancy The myelograms of the full-term babies were characterized by an intense erythropoiesis manifested by a high erythroblastic content The examination made on the 10th day showed that the erythropoiesis had diminished markedly and the granuloblastic activity had increased The findings in the premature babies were similar to those in the full-term babies The erythropoiesis of the postmature infants was more intense than that of the other 2 groups Examination after the 10th day showed that the functional inhibition present in the other 2 groups was not so marked

The Day and Night Output of Urine in Enuresis D Vulliamy Arch Dis Childhood 31 439-443 (Dec) 1956 [London]

The day and night urinary output and the ratio of day to night volumes was determined in 22 children with enuresis and in 24 who did not have enuresis Conditions of diet and fluid intake were standardized in both groups Fluid intake apart from that in the food was 900 cc for children between the ages of 4 and 5 years, 1,050 cc in those between the ages of 6 and 8, and 1,200 cc in those between the ages of 9 and 12 Regulation of fluid intake and diet was begun 2 days before the collection of urine was started, and this continued over an average period of 5 days and nights for each child The sodium and potassium output was also measured, because it was hoped that this would assist in elucidating the cause of the anticipated nocturnal polyuria Most children passed between 150 and 400 cc of urine at night, the volume varying to some extent with age There was no significant difference between the volume passed at night by the children with enuresis and that by the controls There were, however, 4 children who passed amounts outside these limits and who may be said to have had nocturnal polyuria Two had enuresis, and 2 were controls No significant difference between the diurnal output of urine was observed in the children with enuresis and the controls The average day to night ratio of urinary output for the group with enuresis was 1 93, while that of the control group was 1 90 The figures for sodium and potassium did not add any useful information Thus, the theory that nocturnal polyuria is a common contributory cause of enuresis was not confirmed The association of relative nocturnal polyuria with steatorrhea was noted, but enuresis did not always accompany it The tendency for most children with enuresis to have a relatively small bladder capacity, as judged by the maximum volume passed in one act of micturition, was confirmed

Xanthomatosis Due to Stenosis of the Intrahepatic Bile Passages A Clinical Contribution O Lanciano and L Campea Pediat internaz 6 337-359 (Oct -Dec) 1956 (In Italian) [Rome]

A 7-year-old child with jaundice since his 8th day of life and xanthomatosis since he was 2 years and 7 months of age was first admitted to hospital when he was 1½ months old Hypocholic feces, bile pigments of the urine, and normal cholesterinemia were observed A tentative diagnosis of congenital partial obstruction of the bile passages was made At the age of 2½ years the child was subjected to an exploratory laparotomy The extrahepatic bile ducts were found normal, and a hepatic lymph node showed hyperplasia of the reticular cells After the operation, however, jaundice was still present The child was hospitalized again at the age of 7 years at which time somatic hypoplasia, marked jaundice, diffused cutaneous xanthomatosis, and marked hepatosplenomegaly were observed Laboratory tests showed the presence of stercobilin in the feces, of bile pigments and urobilin in the urine, and of a high bilirubin level in the serum The serum level of total lipids was 3,284 mg, total cholesterol 1,047 mg, and phospholipids 1,725 mg per 100 cc Roentgenologic examination showed diffused osteoporosis of the skeleton, the bile passages were not visualized The histological and chemical examination of a xanthomatous node showed the accumulation of intracellular and extracellular lipids and especially of cholesterol The case was diagnosed as xanthomatosis due to chronic partial obstruction of the bile ducts High lipemia is a characteristic sign of this disease

DERMATOLOGY

Malherbe's Mummified Tumor A G Martins Arq pat 28 123-204 (Dec) 1956 (In Portuguese) [Lisbon]

A series of 227 mummified epidermoid cysts (Malherbe's mummified tumors) in 205 patients was observed The disease is rare It is twice as frequent in women as in men The cysts seem to have their origin from embryonic ectodermal rests They consist of primary basal cells with tumor-growing capacity in certain regions of the skin The tumors grow slowly and spontaneously undergo degeneration with mummification, frequently followed by calcification and ossification

The tumors are benign, although in rare cases the histopathological picture may suggest malignancy The tumors do not metastasize, do not regress spontaneously, and do not recur after complete removal, but they may recur after an inadequate removal The tumor is not caused by syphilis, tuberculosis, or trauma, but there may be a familial history of frequency of tumors of various types The tumors occur, in order of frequency, on the face, scalp, neck, and arms They rarely appear on the trunk, chest, and legs They may be solitary or multiple, painless or painful, and some may itch The treatment consists of wide surgical removal Electrodieresis and postoperative roentgenotherapy are unnecessary unless the histopathological examination of the removed tissue shows mitosis or atypical cells Slow-growing solitary or multiple tumors need not be removed, but the patient should be examined at least once a year for the possibility of changes in the tumor Yearly observation is also necessary after removal of the tumors

UROLOGY

Complications of Nephrolithotomy with Special Reference to Secondary Hemorrhage W P Jordan and G C Tomskey J Urol 77 19-23 (Jan) 1957 [Baltimore]

The impetus for this study of the complications of nephrolithotomy was the occurrence of intractable hemorrhage in 2 patients within a short period of time The complications discussed occurred in the course of 75 operations The 2 cases of atelectasis and the 4 cases of thrombophlebitis might have followed any kind of major operation discussed The complications referable to the renal operations in these 75 patients were as follows secondary hemorrhage occurred in 7 It was controlled by conservative measures in 2, but nephrectomy was required in the other 5 Persistent urinary fistula occurred in 6, all of which were instances of severe infection in which drainage by nephrostomy had been necessary for long periods The fistula closed spontaneously in 5 patients, but the remaining patient required nephrectomy for a persistent renocutaneous fistula Perinephric abscess occurred in 2 patients In 1 of them in whom the infecting organism was of the genus Proteus, surgical drainage was sufficient but in the other in whom Micrococcus (Staphylococcus) pyogenes, var aureus was the causative organism, nephrectomy was necessary Recurrent calculus formation was a delayed complication in 7 patients, and in 4 of these nephrectomy became necessary In 2 other patients the kidney failed to function after nephrolithotomy

Thus complications due to nephrolithotomy numbered 24 or nearly 33% This is a high incidence for an operation that is performed to preserve function Secondary hemorrhage is presumably the result of necrosis and infarction of the renal parenchyma which are probably attributable, in many cases, to the use of mattress sutures for closure of the parenchymal wound A technique of closure is described in which these risks are eliminated In this technique the calyx is first closed with interrupted sutures of 000 absorbable surgical sutures All large vessels are tied separately The wound in the cortex is then approximated by interrupted double sutures of 0 chromic absorbable surgical sutures, tied over pieces of fat and muscle on each side of the wound A large, curved, cutting needle or a straight Keith needle can be used, but the preference of these authors is for the crochet type of needle designed by Dee, the use of which greatly simplifies closure Neither strangulation nor constriction of renal tissue has been observed in any of the 15 patients in whom this technique was used in the past year, and hemostasis has been satisfactory Because of its serious consequences, nephrolithotomy should not be performed unless there are definite contraindications to management by pyelolithotomy

Renal Hemangioma with Hematuria F Bierring Ugeskr læger 118 1459-1461 (Dec 6) 1956 (In Danish) [Copenhagen]

Renal hemangiomas are infrequent and present no characteristic roentgenologic changes Deformed calices and pelvis can be expected only in the case of larger hemangiomas and have been observed in but few patients Hematuria occurs when renal hemangiomas cause arrosion of the epithelium of the urinary duct, it is often intermittent and may be monosymptomatic or accompanied by colicky pain due to passage of a clot Cystoscopy shows the unilateral nature of the hematuria Most of the cases reported were discovered only after nephrectomy on diagnosis of essential hematuria Macroscopic unilateral hematuria without other cause and with or without few pyelographic changes should suggest possible renal hemangioma, especially if the symptom is of long duration This remote possibility does not justify an expectant attitude toward so grave a symptom as hematuria The patient reported on by Bierring had severe hematuria due to a small hemangioma, hematuria had occurred twice before the first time 19 years earlier The possibility of benign renal tumor was considered preoperatively Nephrectomy was performed Renal resection has been performed on only a few patients in whom the hemangioma was easily recognizable

The Meaning of Symptoms in the Diagnosis and Prognosis of Renal Tumors S Petkovic Urologia 23 113-124 (April 20) 1956 (In French) [Treviso, Italy]

A series of 100 patients with tumor in the parenchyma of the kidney were observed Of these 83 were subjected to nephrectomy, and 10 died A study of the meaning of the symptoms in these patients showed that both benign and malignant forms of tumor during the preoperative period may produce similar symptoms In malignant tumors, the triad of symptoms (hematuria pain, and edema), observed in 39 patients may indicate that the diagnosis has been made too late In benign tumors, those same symptoms did not prevent fairly good results Practically, however, these 3 symptoms mean that half the number of patients should be considered as lost Hematuria was the first symptom in 50 patients An attempt to base preoperative prognostic conclusions on this symptom give contrasting results The prognosis was either very good or very bad in patients who had hematuria for only a short time

The brief preoperative development of symptoms did not prevent death in some patients, but in others with a less malignant form of tumor the postoperative course was very smooth Sixty-two patients had sharp pain, 32 had colic, and 25 had no pain Persistent pain was a symptom of a high grade of malignancy, with probable metastasis Edema, present in 72 patients, is a bad prognostic sign if it is the initial symptom Absence of the 3 classic symptoms did not increase hope for better results Renal tumors with a long preoperative course with hematuria as a first sign are associated with a better prognosis than those in which edema is the first sign Loss of strength and of weight are bad prognostic signs The author believes that in most patients an accurate prognosis cannot be based on the histological examination Some with similar histological findings had very different prognoses A more accurate diagnosis can be based on the study of the anatomic stage of development of the tumor The author is pessimistic about the validity of the clinical signs as a means for an early diagnosis A pyelogram is conclusive only when the disease is already far advanced

Study of 229 Consecutive Cases of Total Perineal Prostatectomy for Cancer of the Prostate R D Turner and E Belt J Urol 77 62-77 (Jan) 1957 [Baltimore]

This paper analyzes 274 consecutive total perineal prostatectomies performed for suspected malignancy of the prostate gland The analyses were made with the help of punch cards, sorters, and tabulators for comparative study Forty-five cases were excluded because microscopic studies did not reveal malignant tissues the pathological reports were missing, or the primary cancer was in another organ Jewett's evaluation of the results of radical perineal prostatectomy for cancer of the prostate established the soundness and value of this operation The modified technique employed in the 229 cases analyzed here differs from Young's original operation in several ways 1 The approach through the perineum is between the rectum and the anal sphincters 2 No bladder cuff is routinely removed unless there is invasion into the bladder neck 3 Prior to 1946, a small portion (less than 1 cm) of the apex of the prostate was left in, in an effort to avoid injury to the external sphincter and to prevent incontinence Since 1946, the entire prostate, seminal vesicles, ampullae, and several centimeters of the vas deferens have been removed 4 The bladder neck is anastomosed directly to the urethra around a Foley catheter by 4 quadrant sutures

As regards morbidity, mortality, course, and complications, the 229 cases analyzed here closely resemble those presented by Jewett The central fact that emerged from his studies and from this one was that, in patients in whom cancer of the prostate is recognized early and in whom the prostate with its cancer is removed before the cancer has extended beyond the prostatic capsule, a 10-year survival rate is attained, which closely approximates the survival rate of patients of this same age group in the general population It follows that earlier recognition is of vital importance Simple digital examination of the posterior aspect of the prostate in the course of an ordinary rectal examination is a more effective means of discovering the presence of early cancer of the prostate than are more elaborate methods of study Hence, rectal examinations should be routinely made in men of the age group in which cancer of the prostate may be expected to occur An effective surgical procedure, total perineal prostatectomy, is available for cure of such cancers Total removal by urologists should be encouraged on the basis of the higher survival rate associated with this form of surgical attack

Non-Contrast-Producing Urinary Concretions as Cause of Obscure Symptoms and of Severe Renal Damage G Rodeck Chirurg 28 9-14 (Jan) 1957 (In German) [Berlin]

Most urinary calculi are revealed by roentgenographic methods, but a certain percentage do not produce shadows Such calculi may be the cause of hematuria, chronic infections of the urinary tract, damage to the renal parenchyma, and of colicky or continuous pains The author gives particular attention to the non-contrast-producing calculi of the ureters and of the renal pelvis, pointing out that those of the bladder are more readily recognized if not by cystoscopy by the use of a contrast medium The ray absorption factor determined by the chemical composition of the stone is not the only reason a concrement fails to produce a shadow Other factors are surrounding fluids, bones, vessels, and intestinal shadows To avoid diagnostic errors in the presence of non-contrast-producing calculi, it should be remembered that the presence of urinary calculi is always accompanied by signs of inflammation, which, if not due to bacterial infection, may be caused by mechanical irritation While ureteral calculi may cause signs of stasis, those lodged in the renal pelvis generally do not unless inflammatory symptoms have been intensified by bacterial infection producing excretory blockage, with dilatation of the renal calices If the lesion has advanced to this point it may be too late to save valuable tissue The most valuable aid in diagnosis is excretory urography and repeated retrograde and graduated contrast fillings with pyelography

In 1 of the author's patients the presence of a large stone that had become a mold of the renal pelvis on the left side and a ureteral stone on the right side was deduced from roentgenologic signs The large stone of the renal pelvis had remained unrecognized for years and during this time had produced severe tissular damage The development of the ureteral calculus on the right side produced a threatening situation, but, since no bacterial infection had supervened, a conserving operation could be planned for the left side The ureterotomy on the right side was well tolerated, and the postoperative excretory pyelography showed normal excretion with retrogression of the stasis Six weeks later a large coral-shaped uric acid calculus that had become a mold of the left renal pelvis was removed Although there was much cortical scarring, an organ-sparing operation was performed because of the bilateral nephrolithiasis Three points are stressed on the basis of this case history 1 The presence of a calculus cannot be excluded without contrast filling of the renal calices 2 The opposite kidney should always be examined, if an operation is planned on the kidney or ureter of one side 3 An organ-sparing operation may be successful even in the presence of large stones that have become a mold of the renal pelvis Such an operation should always be attempted if the lithiasis is bilateral The other 2 patients whose histories are presented had similar calculi of the renal pelvis Of 225 operations performed for urinary calculi, 51 were nephrectomies, 7 nephrotomies, 55 pyelotomies, 72 ureterotomies, and 40 suprapubic cystotomies There were 2 deaths, 1 from bronchopneumonia and 1 from urosepsis All the other patients were free from fistulas and had good excretory function at the time of discharge from the hospital

THERAPEUTICS

Cardiac Manifestations of Hypopotassemia in Patients Treated with Chlorpromazine R M Perrot, G Moreau-Gaudry and Y Le Borgne Presse med 64 2076 (Dec 12) 1956 (In French) [Paris]

The authors report on a 26-year-old man with a schizophrenic syndrome and a 56-year-old man with manic-depressive psychosis of the hypomanic type who were treated with chlorpromazine An arrhythmia with frequent extrasystoles appeared after 4 weeks of treatment with chlorpromazine in the younger patient The electrocardiogram showed a lowering of the ST segment and an inversion of the T wave These observations suggested hypopotassemia, which was confirmed by the laboratory finding of a blood potassium level of 130 mg per 100 cc (3 3 mEq per liter) The patient was given a daily dose of 2 Gm of potassium chloride orally The extrasystoles became less frequent, and, after 4 months of treatment with potassium chloride, the electrocardiogram was completely normal The older patient had a history of rheumatic fever Tachycardia was present when treatment with chlorpromazine was instituted, but severe arrhythmia with extrasystoles occurred after 4 months of treatment with chlorpromazine The patient was given 1 5 Gm of potassium chloride daily by mouth There was rapid clinical improvement, and the electrocardiogram became normal within 2 months Hypopotassemia, a relatively rare finding, had been reported previously in the course of artificial hibernation, chlorpromazine being one of the ingredients of the "lytic cocktail The authors emphasize the fact that the cardiac disturbances and the electrocardiographic changes in the two patients reported on disappeared after the administration of potassium chloride

Results of Treatment with a New Vasodilator in Patients with Severe Disturbances of Blood Supply in the Lower Extremities K Weghaupt Wien klin Wchnschr 69 31-32 (Jan 11) 1957 (In German) [Vienna]

Duvadilan, a proprietary preparation of 1-(*p*-hydroxyphenyl)-2-(1-methyl-2-phenoxyethylamino) propanol, which greatly increases the peripheral circulation in the extremities without causing a lowering of blood pressure or a significant increase of the pulse rate, was given to a 59-year-old woman with a malignant tumor of the vulva in whom a severe disturbance of circulation in the left lower extremity had occurred after combined surgical, x-ray, and radium treatment The patient had severe pain in the left lower extremity, the lateral portion of which showed a white discoloration The pulse in the left femoral artery was not palpable There was beginning gangrene, and paravertebral anesthesia of the sympathetic nerve with 10 cc of a 1% solution of procaine hydrochloride in the area of the 2nd and 3rd lumbar ganglions was ineffective Administration of large doses of other vasodilators such as nicotinic acid derivatives and *hydrogynated ergotoxic alkaloids also* failed Amputation was recommended by 4 surgeons but was refused by the patient

The entire lateral portion of the skin showed a blue-brown discoloration on the 22nd day after the onset of the first symptoms The entire foot showed the same discoloration, and the leg was cold and extremely painful Moist gangrene of 2 toes developed, and a burrowing ulcer occurred in the lateral portion of the leg Two ampuls of 10 mg of Duvadilan each were injected 3 times daily Pain in the extremity subsided, and a notably regressive tendency of the discoloration of the skin was observed within a few days after the institution of the treatment The necrotic portions of the skin sloughed off several days later, and the pulse of the femoral artery became faintly palpable Granulations in the area of the cutaneous defect caused healing of the ulcer The patient was discharged after 1 month of treatment with Duvadilan but continued treatment by taking 6 tablets of 10 mg of the drug orally daily for 2 months The drug was well tolerated Seven months after the institution of treatment the patient was able to walk long distances without discomfort, trophic disturbances were completely healed and the pulse of the femoral artery was readily palpable

Four additional patients with severe intermittent claudication due to arteriosclerosis were treated with Duvadilan The drug was given orally in daily doses of 60 mg The patients soon were able to walk longer distances before symptoms reappeared and finally were able to walk long distances without pain One of the patients had severe sciatic pain possibly caused by a disorder of nutrition of the nerve This pain subsided completely as a result of the treatment Duvadilan is considered a valuable drug, and its administration may make amputation unnecessary

Urinary Infections Due to 4, 4'-Diaminodiphenyl Sulphone Therapy Report of Three Cases F C Combes and M Reisch Brit J Dermat 69 25 27 (Jan) 1957 [London]

Diaminodiphenyl sulfone (dapsone) has been used effectively not only in tuberculosis and leprosy but also in many toxic bullous eruptions, especially dermatitis herpetiformis and pemphigus Urinary infections developed in 3 patients who were treated with dapsone for dermatitis herpetiformis, pemphigus vulgaris, and leprosy respectively When the administration of the drug was discontinued and a suitable antibiotic was given the patients recovered To ascertain why the prolonged administration of dapsone results in pyelonephritis rather than in intestinal disturbances that sometimes accompany the protracted administration of antibiotics, the absorption and excretion of the drug were studied After the administration of therapeutic doses of dapsone, it is found in all tissues and body fluids, the liver and kidney containing relatively high concentrations Minor disturbances such as repeated attacks of erythema nodosum, arthralgia, and peripheral neuritis due to intolerance of sulfone therapy are common, but side-reactions involving the urinary tract, such as reported here are not common The authors recommend that patients with slight albuminuria be given lower than ordinary dosages of dapsone When administering dapsone by mouth, it should be remembered that it is capable of provoking urinary infection by organisms resistant to it

Infections Complicating Cortisone Therapy F P Smith and E A Cleve New England J Med 256 104-108 (Jan 17) 1957 [Boston]

Six patients are reported in whom infection complicated cortisone therapy, 3 of them died The steroid had been given to 3 of the patients for rheumatoid arthritis, to 1 for rheumatic fever, and to 1 for acquired hemolytic anemia In the 6th patient, there was less justification for steroid therapy for supportive effect" in treating severe liver damage The experimental data supported the assumption that cortisone was responsible for the complications by bacterial infection The disease process in 1 of the patients corresponded to that seen in animal experiments in which an ordinarily nonpathogenic organism was able to invade and kill when the defenses of the host were lowered by cortisone This patient's tissues resembled those described in the animals, showing widespread microscopic abscesses with little tissue reaction One patient had histoplasmosis and 1 had monilia infection Both died The authors believe that the observations on these patients emphasize the numerous warnings of the hazards of cortisone therapy

Considerations of 3 Cases of Acute Meningitis in the Course of Cortisone Therapy F A Fusco Arch E Maragliano' pat e clin 12 977-999 (Oct) 1956 (In Italian) [Genoa, Italy]

Septic complications occurred in 6 patients in a group of 200 persons undergoing hormonal therapy Three of these 6 patients died of fulminating purulent nonmeningococcic meningitis while they were undergoing cortisone therapy—for acute subleukemic leukemia in the 1st patient, acute disseminated lupus erythematosus in the 2nd, and chronic lymphocytic leukemia in the 3rd The general condition of these patients was poor, agranulocytemia or severe granulocytopenia was present in their blood The meningeal localization in patients with septic complications is rare The authors believe that the infection was caused by a marked reversion of the immunoallergic responses of the organism, which is likely to take place in patients who are susceptible to toxic and infectious complications

Antileukemic Action of Reserpine A Goldin, R M Burton, S R Humphreys and J M Venditti Science 125 156 157 (Jan 25) 1957 [Washington, D C]

Since large doses of reserpine produce marked changes in the normal metabolic patterns, it was thought possible that this drug might alter the metabolism of tumor cells more extensively than it did that of normal cells and, thereby, prove detrimental to the tumor The data presented show that reserpine can exert an antileukemic action Hybrid male mice were inoculated in the right hind leg with 0 1 ml of a suspension of leukemic cells Leukemia was allowed to develop until the local tumor had reached a diameter of from 9 to 12 mm (estimated by palpation), at which time the disease is generally systemic as well as local The mice were then divided at random, and the designated groups were treated with a single injection of reserpine This produced an almost threefold increase in the survival time Inhibition of the growth of the local tumor was observed consistently in the reserpine-treated mice Five days after the administration of reserpine, when all control animals were dead the change in the mean tumor diameter was an inverse function of the dose of reserpine given Treatment with reserpine frequently appeared to result in complete disappearance of the local tumor at the site of leukemic inoculation, but transplantation of the spleen from several such mice resulted in leukemic growth, indicating that systemic infiltration had not been wholly suppressed Concomitant with the inhibition of local tumor growth, reserpine also appeared to retard the usual terminal leukocytosis in the peripheral blood Preliminary experiments indicate that a regimen of daily treatment with small doses of reserpine may be superior to treatment with a single large dose of the drug The mechanism by which reserpine exerts its antileukemic action is not known

Hepatic Coma Use of a New Drug, Arginine, in Its Treatment R Manning and M Delp J Kansas M Soc 58 18-20 (Jan) 1957 [Topeka]

Excessive accumulation of ammonia is an important factor in the metabolic disorders involved in hepatic coma, and, since 1-arginine hydrochloride had proved effective in protecting rats against toxic doses of ammonium acetate, the authors decided to use this substance on 3 patients with hepatic coma It was given intravenously All 3 patients recovered much more rapidly than had other patients treated with different methods None of the 3 patients received monosodium glutamate at any time, although other means of supportive therapy were given Arginine probably exerts its beneficial and protective effect by increasing the turnover rate of the classic Krebs-Henseleit urea cycle within the liver The authors recommend the use of arginine in the management of hepatic coma

Nicotinyl Alcohol Tartrate in Intermittent Claudication R O Gillhespy Brit M J 1 207-208 (Jan 26) 1957 [London]

Fifty patients with severe intermittent claudication secondary to generalized arteriosclerosis were given 1 25-mg tablet of nicotinyl alcohol tartrate or a placebo of identical appearance 4 times daily for at least 18 months Patients who had any other serious disease, correction of which might have influenced the assessment of the results, were excluded A blind-control trial of the drug was believed to be essential because of the difficulty of making an unbiased assessment of improvement in such a chronic condition At the end of the 18 months, only 30 patients remained for final assessment Fifteen patients had died, 3 had moved to another area, and 2 had refused to complete the course of treatment Of the 30 patients, 17 had received nicotinyl alcohol tartrate Ten of the 17 patients had had moderate improvement and 3 slight improvement, and in 4 the therapy failed None of the 13 control patients were even moderately improved, 4 were slightly improved, and 9 had no change Results in the patients who were given the active drug thus were significantly better than in those who received the placebo Nicotinyl alcohol tartrate is a useful drug in the control of intermittent claudication

PATHOLOGY

Drowning K Bowden M J Australia 1 39-43 (Jan 12) 1957 [Sydney, Australia]

On examination of the bodies of drowned persons, the usual signs of death from drowning are sometimes missing, and so a search has been made for some postmortem finding that is diagnostic of death from drowning Investigators demonstrated in animals that water might enter the blood stream by way of the pulmonary alveoli and might quickly reach the left side of the heart Attention was focused in fresh-water drowning on the possible dilution of the substances in the blood in the left side of the heart as compared with that in the right as an aid in the diagnosis of death from drowning Gettler's test on the difference in chloride levels in the two sides of the heart is mentioned, as is the work of Jetter and Moritz, who demonstrated that it is essential to determine what happens to the various constituents of the blood after death in ordinary cases in which death is not due to drowning They concluded that within from 6 to 12 hours after death there was a progressive fall in the blood chloride level and a rise in the magnesium level This has to be kept in mind when interpreting postmortem analysis of the blood constituents in cases of suspected drowning, and it imposes limitations on their use Observations on animals raise some interesting questions about drowning in man For example, is death in fresh-water drowning due to ventricular fibrillation brought about by the rapid flooding of the blood stream with water? Does the mechanism of death differ in fresh-water drowning from that in salt-water drowning in which ventricular fibrillation has not been so commonly observed? Could the rise in magnesium level in the blood in salt-water drowning of itself lead to death? In other words, are there additional factors? Is death in drowning a much more complex problem than simple asphyxia?

The author presents data on serum electrolyte levels in 6 patients drowned less than 4 hours previously in fresh water and in 5 subjects drowned in salt water The control series included subjects who had been dead for 5 to 36 hours as the result of hanging, a person dead from head injury, and several other subjects who had died suddenly less than 4 hours previously It was found that in fresh-water drowning and in salt-water drowning the changes in the electrolyte levels tend to be in opposite directions For example, the elevation of both sodium and chloride levels in salt-water drowning is not what one expects to find as a result of postmortem change and is in the opposite direction from the changes in sodium and chloride levels in fresh-water drowning This tendency toward changes in opposite directions indicates that asphyxia alone is not a common factor setting up the alteration

Provided that their limitations are appreciated, biochemical tests may be of value in the diagnosis of drowning It seems probable that, in some cases of salt-water drowning, cardiac arrest or ventricular fibrillation may rapidly set in as a result of the biochemical changes in the blood Hemolysis is a feature in some cases of fresh-water drowning Since drowning is a much more complicated process in many instances than simply deprivation of air or anoxia, is it necessary to do more than attempt to clear the airway and maintain artificial respiration? Is there a place for cardiac massage or the use of a defibrillator? Is intravenous therapy necessary? Additional treatment along these lines in some instances appears to be largely impracticable, but it is not necessarily so Since drowning is a complicated process and more difficult to treat than is generally known, learning to swim should be a part of every child's education

Tumors of the Vascular System with Special Reference to Malignant Angio endothelioma D J Reddy, K G Gupta, T S Rao, an others Indian J Dermatol & Venereol 22 165-174 (Oct-Dec) 1956 [Bombay, India]

Of the patients with hemangiomas and lymphangiomas on whom the authors made clinical and histological studies, 18 with hemangiomas and 3 with lymphangiomas presented no unusual features However, 4 endotheliomas were malignant and 4 others showed clinical and histological findings bordering on malignancy Two of the vascular tumors were of the sclerosing type of angioendothelioma that are likely to be mistaken for fibromas While the ages of the patients ranged from two months to in the 7th decade, 40% of the hemangiomas occurred in children less than 10 years of age The malignant endotheliomas, however, with one exception (a 2-year-old-child), occurred in patients between the 3rd and 7th decades

In commenting on 4 patients with lesions on the borderline of malignancy, the authors say that pathologists have noted that, despite evidence of malignancy, few of these tumors metastasize, although surgeons are familiar with the benign metastasizing angioendothelioma These contradictory findings are a warning against dogmatism on the part of the pathologist and the clinician The unpredictable biological behavior of angioendothelioma should be realized The influence of trauma in the production of tumors of the vascular system is well established The authors believe that intramuscular injections in the gluteal region in one of the reported cases, constant injury to the mucosa and structures beneath it by a protruding canine tooth in another, and a cut over the chin sustained by another patient were probably responsible for the neoplasms at these sites Chronic inflammatory reaction that followed ulceration of the angioendothelioma over the scalp may have given the histological picture of borderline malignancy

Residual Radiologic Findings in Patients with Pulmonary Tuberculosis Treated with Tuberculostatic Drugs Interpretation as a Function of Anatomic Examinations G Brouet, J Marche and J Chretien Rev prat 7 233-246 (Jan 21) 1957 (In French) [Paris]

A series of 1,800 lung specimens that were removed surgically from patients who had pulmonary tuberculosis and who had been treated with tuberculostatic drugs were examined macroscopically and microscopically Of these, 40 demonstrated the efficiency of this treatment as revealed by a biological cure of the tuberculosis An operation had been performed on each of these patients for 1 of the following 3 reasons 1 The patient wanted to be freed from a residual minor abnormality revealed by the chest roentgenogram, because this abnormality required careful observation after prolonged treatment 2 Although the roentgenograms taken after the treatment with the tuberculostatic drugs showed almost complete clearing of the lungs, the 1st roentgenograms taken before the institution of the treatment had shown such severe tubercular lesions that caution seemed to be warranted in pronouncing the recovery complete In patients belonging to these 2 groups, complete healing of the tuberculous foci in the absence of any nonspecific, significant, and residual alterations may be observed frequently on microscopic examination Fourteen of the 40 specimens were from patients in 1 of these 2 groups 3 Roentgenograms revealed important residual abnormalities after a more or less prolonged treatment with the tuberculostatic drugs, or the appearance and the size of the lesions in the roentgenogram did not warrant a favorable prognosis The findings suggested the persistence of active tuberculous foci despite constantly negative bacteriological findings The anatomic examination of the removed specimens, however, showed that the radiologic interpretation had been erroneous and confirmed the efficiency of the antituberculous chemotherapy Twenty-six of the 40 specimens were from patients in this group

The macroscopic and microscopic examination of the 14 specimens did not show any residual tuberculous foci in the pulmonary parenchyma Microscopic examination revealed either a systemic, pure, diffuse or localized sclerosis or air-containing structures free of any tuberculous activity These air containing structures had been interpreted erroneously as tuberculous cavities in the roentgenograms They were rarely the result of a vesicular emphysema around the lesions but more often resulted from extensive bronchiectases of an entire segment or lobe, but they were free of any active or associated bronchial tuberculization Cicatricial cavities were observed frequently The same changes were observed in the 26 specimens, but one or several inactive tuberculous foci persisted The patients with these findings, nevertheless, had made a clinical recovery These foci were completely involuted and very small, and the anatomic changes were not characteristic of tuberculosis There were no exudative or follicular lesions in the adjacent parenchyma

The macroscopic and microscopic examinations of lung specimens removed surgically make possible a better interpretation of roentgenograms that show residual changes in patients treated with tuberculostatic drugs They also show that a total anatomic recovery is possible in some patients after sufficientl prolonged chemotherapy (for 12 months in patient with recent common forms of pulmonary tuberculosi and for from 18 to 24 months in patients with sever initial or untreated old lesions) A cure of pulmonar tuberculosis treated accordingly may be obtained wit radiologic sequelae that do not necessarily indical active lesions

Struma Ovarii A Follow up Study of 20 Cases (Aberrant Thyroid Tissue III) J B Dalgaard and P Wetteland Acta chir scandinav 112 1-15 (No 1) 1956 (In English) [Stockholm]

A total of 62,000 biopsy specimens were examined for evidence of aberrant thyroid tissue, which was found in the ovary of 20 patients, 107 patients with ovarian teratoid tumor were treated, and varying amounts of thyroid tissue were found in the 21 specimens taken from the 20 patients Follow-up examinations were made from 1 to 21 years after the ovarian operation Small amounts of thyroid tissue (struma ovarii spuria) were present in the tumors of 7 patients, whose ages were between 25 and 47 years Six tumors revealed ordinary follicular thyroid tissue, and 1 displayed a papillary pattern The symptoms were nonspecific Ascites was present in 1 patient who had a nontoxic cervical goiter and exophthalmos She died of metastasizing mammary carcinoma 13 years after an ovarian operation The 6 other patients were in good health Thyroid tissue (struma ovarii vera) was the only or the predominant finding in 13 patients All showed ordinary follicular thyroid tissue in the ovarian tumor The ovarian struma proved to be of little or no clinical importance in 7 of these patients Ascites occurred in 3 and peritoneal adhesions in 5 patients All were alive and well at follow-up examination

The 6 remaining patients showed specific or severe symptoms One had a fully developed Meigs's syndrome cured by removal of the ovarian tumor Thyrotoxic symptoms due to functioning ovarian strumas were found in 3 patients The basal metabolic rate showed a permanent return to normal after the ovarian operation in only 1 of these patients Two had malignant ovarian struma A papillary thyroid carcinoma was first removed from 1 ovary and 7 years later from the other in 1 of these patients She was still alive 4 years later Bony metastases were found 4 years after removal of the ovarian struma in the other of the 2 patients The patient had an extraordinarily protracted course of the disease and died 21 years after operation Severe symptoms are most likely to develop in patients with pure ovarian struma and in those with a papillary pattern Long observation of patients with ovarian struma is necessary Women with thyrotoxic symptoms should be subjected to gynecologic examinations, especially when no cervical goiter is present, before an operation on the thyroid is performed

Metastatic Thyroid Tissue in Bones as Diagnostic Problem A Follow-up Study of 5 Cases (Aberrant Thyroid Tissue IV and Conclusion)' J B Dalgaard and P Wetteland Acta chir scandinav 112 18-24 (No 1) 1956 (In English) [Stockholm]

A follow-up study was made of 5 women whose biopsy specimens revealed thyroid tissue with or without histological atypia Five specimens were obtained from bones and 1 from the scalp, but even this latter was possibly of osseous origin Two patients had spontaneous fractures of the femur and humerus respectively Histological examinations showed metastatic adenocarcinoma with marked atypia and colloid-filled follicles of thyroid type Death occurred within 1 year after the biopsy Two patients with metastasizing thyroid adenoma died 2½ years after diagnostic biopsy One patient, whose primary tumor was a papillary ovarian struma, died 17 years after the 1st osseous biopsy had been made A remarkable clinical improvement was observed in 1 patient with a metastasizing sternal Hurthle cell carcinoma After subtotal thyroidectomy a Hurthle cell adenoma recurred twice in the right lobe of the thyroid In the presence of the sternal metastasis, the thyroid lesion was considered malignant The patient responded well to radiologic and I^{131} treatment The sternal metastasis subsided, and the patient was found in good health at the follow-up examination 2 years later The histological diagnosis of metastases from a thyroid tumor was unexpected in 3 of the patients, since no symptoms of thyroid disease were present and since the goiter of 1 patient had been considered benign The diagnosis of malignant thyroid disease was first revealed by means of the osseous biopsy in all these patients An apparently benign structure of the aberrant node, called usually metastasizing adenoma,' should not deceive the physician This term is mostly used for adenomas occurring in bones but also for those located laterally on the neck The authors suggest abandoning this term, since it may be misleading when used uncritically and may mask the malignant nature of the lesions

RADIOLOGY

Splenoportography in Forty seven Patients L P Doutre Bordeaux chir, pp 210-213 (Oct) 1956 (In French) [Bordeaux, France]

Transparietal splenoportography was performed on 47 patients with various types of splenic and hepatic disease The author emphasizes the absence of risk associated with splenic and even extrasplenic puncture One patient with gastric cancer was operated on on the morning splenoportography was performed because of suggested hepatic metastasis No hemorrhage occurred One patient with cancer of the rectum was erroneously given a puncture into the peritoneal cavity He underwent operation on the next morning because the iodized preparation was completely absorbed by the peritoneum without serious accident Transparietal splenoportography permits evaluation of the changes in the splenoportal trunk Splenoportography should always be performed before splenectomy In doubtful cases splenoportography might indicate whether surgical or medical treatment is necessary

Roentgenologic Aspects of the Eisenmenger Complex C L Ebnother and H L Abrams Am J Roentgenol 77 248-262 (Feb) 1957 [Springfield, Ill]

Roentgenologic studies were performed on 6 male and 6 female patients between the ages of 4 and 34 years with the Eisenmenger complex, a congenital malformation consisting of a large ventricular septal defect, with aortic overriding of variable degree, increased pulmonary vascular resistance and consequent pulmonary hypertension and a shunt of blood from the right ventricle into the aorta Cyanosis, from slight to moderate in degree, was present in all but 1 patient Exertional dyspnea was a common complaint, and recurrent respiratory infections were present in 8 patients Four patients had a history of frequent severe bouts of pneumonia Clubbing was noted in 6 patients, and all patients had murmurs, usually systolic but occasionally diastolic as well, varying in location intensity, quality, and radiation The most constant roentgenologic features were right ventricular enlargement, enlargement of the main and hilar pulmonary arteries, and disparity between the large size of the proximal pulmonary arteries and the small caliber of the peripheral pulmonary arteries The aorta appeared hypoplastic in 9 of the 12 patients The roentgenographic appearance associated with pulmonary hypertension in congenital heart disease is frequently distinctive, this is well illustrated by studies of the Eisenmenger complex

The Eisenmenger complex must be differentiated from all conditions associated with pulmonary hypertension including atrial septal defect, ventricular septal defect, patent ductus arteriosus, and primary pulmonary hypertension Usually there is greater right ventricular enlargement and evidence of pulmonary plethora, with prominent peripheral vessels, in patients with atrial septal defect Biventricular enlargement with more obvious left ventricular prominence than that in the Eisenmenger complex may be observed in patients with a large ventricular septal defect The absence of cyanosis and significant arterial oxygen unsaturation are important differential points in patients with atrial septal defects and in those with ventricular septal defects Angiocardiography and peripheral blood oxygen studies are important for differentiation in patients with patent ductus arteriosus and primary pulmonary hypertension

The Roentgenologic Diagnosis of Pulmonary Hypertension in Mitral Stenosis J B Schwedel, D W Escher, R S Aaron and D Young Am Heart J 53 163-170 (Feb) 1957 [St Louis]

The widths of the right descending branch of the pulmonary artery were measured with the aid of teleroentgenograms in its upper portion (at right angles to the bronchus from the bronchus to the outer margin of the vessel) in 100 normal hospital employees between the ages of 18 and 60 years Ninety per cent of the widths were from 9 to 13 mm Only 4 were 15 mm or greater, and all of these were in the 40-year to 60-year age group Thus the range from 9 to 13 mm may be considered normal, and measurements exceeding 14 mm may be considered abnormal

The widths of the right pulmonary artery were measured in 105 patients with pure or significantly predominant mitral stenosis Roentgenograms revealed decreased aeration of the lung parenchyma in 70 of the 105 patients and showed narrowing of the tertiary pulmonary artery in 21 Pulmonary artery pressure levels were obtained by cardiac catheterization in 77 and by direct puncture of the pulmonary artery in 56 The upper limit of normal mean pulmonary artery pressure is regarded as 15 mm Hg, and a mean pressure level of 25 mm Hg is considered a significant elevation Of the 77 catheterized patients, 47 had right pulmonary artery widths measuring 14 mm or above Forty-five of the 47 had resting mean pulmonary artery pressure levels exceeding 25 mm Hg and the other 2 had less significant elevations All of the 41 patients with pulmonary artery widths of 15 mm or more had significant pressure elevations A similar correlation was noted between pulmonary artery widths and pulmonary artery pressures obtained at the time of operation by pulmonary artery puncture In patients with widths of below 14 mm, correlation was much less reliable Thirteen of the 77 catheterized patients had neither increased right pulmonary artery widths nor significantly increased pulmonary artery pressure levels Seventeen others among the catheterized patients showed significant pulmonary hypertension with pulmonary artery widths of 13 mm or less

These observations show that roentgenographic demonstration of right descending pulmonary artery widths of 15 mm or more is definitely associated with significant pulmonary hypertension, and significant pulmonary hypertension is most likely present in patients with widths of 14 mm A linear correlation between pulmonary artery width and level of pulmonary artery pressure does not exist

Cardiac Ventriculography Direct Transthoracic Needle Puncture Opacification of the Left (or Right) Ventricle J S Lehman, B G Musser and H D Lykens Am J Roentgenol 77 207-234 (Feb) 1957 [Springfield, Ill]

The term cardiac ventriculography' was coined by the authors to designate a procedure of direct transthoracic needle puncture of the heart for the purpose of effecting opacification of the left or right ventricle Seventy-seven cardiac ventriculographies were performed on 60 patients for the assessment of the presence and degree of mitral valvular insufficiency, the evaluation of surgical procedures directed towards correction of mitral insufficiency, appraisal of aneurysm of the left ventricle and assessment of certain aortic lesions, such as aortic aneurysm or coarctation The patients were given a combination of secobarbital or pentobarbital, atropine sulfate, and meperidine (Demerol) hydrochloride 1 hour before the examination to allay apprehension and pain and to aid in preventing certain potential disturbances of cardiac conduction A 70% solution of iodopyracet (Diodrast) was used as radiopaque medium

Roentgenologic technique, ventricular puncture, intracardiac pressure and electrocardiographic monitoring, and injection of the contrast medium are discussed The intracardiac pressures observed and the electrocardiographic changes that occurred in the course of the procedure are presented Inadvertent intramyocardial or intrapericardial infiltration of iodopyracet occurred in 8 patients Slight pain but no shock symptoms, a 6-beat, 7-beat, or 9-beat ventricular tachycardia, atrioventricular dissociation, and right bundle-branch block were observed in 7 of these patients, the electrocardiographic changes persisted through the immediate postinjection period in some of the patients A complete heart block occurred in one patient and persisted for 4 months causing aggravation of the patient's mitral insufficiency These reactions to the procedure occurred among the first 47 persons given cardiac ventriculographies They were avoided later by the aiming of the needle, adjustment of the needle point, shallow breathing of the patient, and nonmotion of needle or patient after intracardiac insertion of the needle

An evaluation of the quality of the cardiac ventriculographies based on the degree of contrast visualization of the ventricle is tabulated Atrial fibrillation, with a poorly controlled ventricular rate, paroxysmal atrial tachycardia, atrial tachycardia caused by a vagal release from administration of atropine, and ventricular tachycardia, either spontaneous or induced by medication, are contraindications to cardiac ventriculography The procedure should not be employed in children and infants because of the greater likelihood of intramyocardial injection of the contrast medium i e , when the ventricular cavity is small

PHYSIOLOGY

Pulmonary and Circulatory Effects of Acute Pulmonary Vascular Engorgement in Normal Subjects S Bondurant, J B Hickam and J K Isley J Clin Invest 36 59-66 (Jan [Part I]) 1957 [New York]

Central and pulmonary vascular engorgement is a characteristic feature of congestive heart failure It has been suggested many times that this vascular engorgement might be responsible for certain phenomena associated with congestive failure, such as stiffening of the lungs, dyspnea, and orthopnea The simultaneous occurrence of pulmonary edema and other changes, however, has made it difficult to single out the effects of simple vascular engorgement The present study was undertaken to investigate the pulmonary and circulatory effects of acute reversible central and pulmonary vascular engorgement in normal men Central and pulmonary vascular engorgement was produced by rapid application of pressure over the surface of the body Two methods were used to accomplish this inflation of an aviator's 'G suit' and submersion in water while the patient was breathing against atmospheric pressure The G suit was a single-chamber, balloon-type garment that covered the feet, legs, and lower part of the abdomen The suit could be inflated to the desired pressure within 5 seconds by a standard Air Force G-valve Suit pressure of 2 lb per square inch (103 mm Hg) was customarily used The subjects were studied in the seated position before, during, and after a 2-minute period of suit inflation Seated subjects were studied before, during, and after submersion in water to the neck and with the head just below the surface At this depth, the mean pressure at hip level during total submersion was about 60 mm Hg or 1 2 lb per square inch

G-suit inflation produced in 15 subjects an increase in central venous pressure of 26 8 (standard deviation ± 7 8) cm H_2O and a fall in compliance distensibility from the control value of 0 217 ± 0 048 liters per centimeter of water to 0 093 ± 0 036 liters per centimeter of water A similar drop in compliance occurred with submersion On maintenance of G-suit pressure or submersion for a 2-minute period, central venous pressure and compliance showed a progressive, but incomplete, return toward control levels Infusion of norepinephrine or immersion of an arm in ice water during this time prevented the return of venous pressure and compliance toward control levels Administration of norepinephrine or immersion of an arm in ice water with G-suit inflation caused a moderate increase in central venous pressure and a moderate decrease in compliance When the G suit inflated during norepinephrine infusion, the resultant elevation of central venous pressure and the drop in compliance were greater than in untreated subjects Pretreatment with hexamethonium diminished the rise in central venous pressure that occurred with G-suit inflation but did not affect the compliance changes It is suggested that the compliance changes induced by these procedures depend, at least partially, on varying degrees of pulmonary vascular engorgement and that this, in turn, depends partially, under the present experimental conditions, on peripheral venous tone

Some Respiratory Data in Man at the Barometric Pressures of 760, 526, and 379 mm Hg A Scano, F Rossanigo, G Meineri and B Tagliamonte Riv med aeronaut 19 595 605 (Oct Dec) 1956 (In Italian) [Rome]

The authors report on the results obtained in a group of 35 jet pilots with an average age of 25 years who were subjected for 30 minutes to simulated flights in a decompression chamber with barometric pressures of 526 and 370 mm Hg corresponding to elevations of 3,000 and 5,500 m respectively The pulmonary ventilation, the alveolar ventilation, and the respiratory rate at rest were recorded at sea level and at the above-mentioned barometric pressures Samples of mean alveolar air were collected and analyzed The respiratory responses to a hypoxia of medium degree were as follows no increase of the respiratory rate, a nonsignificant increase of 2 2% in the pulmonary ventilation at 3 000 m , a significant increase of 23 4% at 5,500 m , and a relatively higher increase of the alveolar ventilation of 4 3% and 31 2% respectively, with the same statistical value The values of pAO_2 and $pACO_2$ and respiration obtained experimentally and with statistically significant variations, when plotted on the oxygen-carbon-dioxide diagram, result in a curve that falls between the curve for nonacclimatized subjects and that for acclimatized subjects They correspond to a physiological altitude somewhat lower than the barometric altitude and coincide with the alveolar ventilation and with the energetic metabolism of the subjects A correlation corresponding to —48 8% was found between the values of volume of alveolar air and $pACO_2$ at the different altitudes The authors emphasize the meaning of these respiratory variations for a careful and exact evaluation of the functional responses to lowered barometric pressures

BOOK REVIEWS

Heart Sounds, Cardiac Pulsations, and Coronary Disease By William Dock M D Professor of Medicine State University of New York College of Medicine at New York City Porter lectures series 21 Cloth $2 50 Pp 98 with 23 illustrations University of Kansas Press, Lawrence, 1956

In the first two chapters of this small volume, the author presents his views on the value of the ballistocardiogram, pulse records, and heart sounds in diagnosis, prognosis, and treatment The last chapter deals with the controversial subject of the relationship of exogenous cholesterol and cigarette smoking to coronary artery disease The author is positive in his belief that the increasing incidence of coronary artery disease in this country, particularly in the younger age groups, is to a large extent due to a diet high in cholesterol As to smoking, he states, "The enormous rise in consumption of cigarettes explains in part why coronary disease kills men at an earlier age in 1955 than it did before 1900 Long years of experience as a teacher, research worker, and lecturer have enabled Dr Dock to present his views in a convincing manner, even though many cardiologists will disagree with him

California Social Welfare Legislation, Financing, Services, Statistics By Vaughn Davis Bornet, Ph D Research study commissioned by Commonwealth Club of California founded 1903 Cloth $5 Pp 524 with 8 illustrations Prentice-Hall Inc Englewood Cliffs N J 1956

The purpose of the book is to provide the citizen, social worker, and specialist in social studies with comprehensive statistical data on California's social welfare programs, their legislation financing, and services Although the presentation of information on a county basis is a primary objective of the work, the functions of larger political and economic units are not overlooked The first two chapters (part 1) deal with the state and federal setting as well as with California's 10 economic regions Legislation, covered in part 2, is basic to the various programs Its complexity is a feature emphasized by the many amendments to California's laws Usually the most important parts of the laws are quoted verbatim, yet, despite frequent mention of the 25th amendment to the California constitution, no quotation or concise paraphrase of its provisions is given

Part 3, on financing, will interest both students and taxpayers The relative growth and importance of public and private welfare programs are carefully examined for the years 1950 to 1954, some data for selected years in the mid-1920's are also included The increase in private charities over the 30-year interval was substantial, yet that in public welfare was apparently three or four times as great More frequent use of the ratio of financial assistance to total disbursements, as in table O, for both public and private programs would have been desirable

Part 4 contains five chapters, the third of which deals chiefly with health services for children and adults The remaining chapters delineate other categories of welfare services provided to four different age groups The author acknowledges that this part "could not be exhaustive in the manner of some parts of the volume,' as it deals with only four counties in northern California The findings may not be useful for other parts of California, or the nation, because of the dissimilarity of these larger units with respect to organized social welfare As indicated in parts 3 and 5, this same problem of heterogeneity is evident in the financing of welfare programs in California

Although component data for public assistance expenditures, as shown in table C, are provided for all counties in the part (5) assigned to social welfare statistics, those for health and recreation as well as welfare (public assistance) are presented for only one county and one city (tables F and G) Evidently the degree of variation in the extent and type of data concerning public health is great at the county level Within the public assistance categories, of which aid to the blind is one, a small amount of health expenditures is included under general relief (footnote d of table C) For the five Bay Area counties (table 1, page 300), 30% of the total public expenditure for health, welfare, and recreation in 1954 was for health Chiefly because of the more rapid rise in welfare expenditures during the last 30 years, the proportion spent on health has been declining

The author evidences honesty of scholarship in many ways References to other works and sources of information are amply provided The cost data are often presented on a per capita basis and also adjusted for changes in the value of the dollar Generally the author displays a critical attitude toward his data, realizing that the assignment of identical names to certain data does not necessitate identical meaning In similar fashion the reader should watch for the variations in the major expenditure categories among tables C, D, and F With equal frankness the author recognizes, in addition to the world of "organized social welfare which is the subject of this volume, another world of charity 'almost impossible to measure He characterizes his volume as an overview, not an encyclopedia It does not question motivation and wisdom, attempt definitive comment on welfare needs, or call for a review of programs It seeks merely to record facts

Although some readers may not consider the author's arrangement of the data optimal at all times, this work provides a significant step toward the accumulation and presentation of systematic data on the basis of which social welfare programs can be evaluated and improved in the interest of both donors (voluntary and involuntary) and recipients

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated

Classics in Arterial Hypertension By Arthur Ruskin, M D F A C P Associate Professor of Internal Medicine, University of Texas—Medical Branch, Galveston Publication Number 290 American Lecture Series monograph in Bannerstone Division of American Lecture Series Classics in Science and Medicine Edited by Wiktor W Nowinski Ph D, Dr Phil Nat, Associate Professor of Biochemistry University of Texas—Medical Branch Cloth $9 50 Pp 358 with illustrations Charles C Thomas, Publisher 301-327 E Lawrence Ave Springfield Ill Blackwell Scientific Publications Ltd, 24 25 Broad St Oxford England Ryerson Press 299 Queen St, W Toronto 2B Canada, 1956

The aim of this anthology is to accumulate in one convenient volume past eminences and peaks of achievement in the field of hypertension Older merely allusive pre-Halesian material is briefly surveyed in the introduction The next 120 pages deal with methods from Hales to Korotkov and the remainder with clinical and physiological descriptions ending with Goldblatt's description of experimental renal hypertension in dogs The selections are well arranged so that the book is both informative and inclusive Everyone will not agree with Dr Ruskin's opinion that hypertension due to buffer nerve section (Koch and Mies, 1929) is transitory although he says that it is labile

The failure to include quotations from Janeway's book has the reasonable explanation that that book has no priority, for credit for the material therein goes to Allbutt and before him, to Mahomed Nevertheless Janeway's book had a profound influence on medical thinking in this country and, in particular popularized the term hypertension as more convenient than Allbutt's etymologically superior term 'hyperpiesia' Perhaps a selection from Janeway should be included and Potain, whose contribution was not large omitted This book will interest all reflective physicians who work with some aspect of hypertension

Notions de cytologie et histologie Par M Chevremont professeur ordinaire aux Facultes de medecine et des sciences de l Universite de Liege Boards Pp 994, with 636 illustrations Editions Desoer 21, rue Sainte-Veronique Liege Belgium 1955-1956

This first edition in print is the successor to two editions in other forms prepared for students of zoology of the medical sciences, and of natural science at the University of Liège It deals primarily with the cytology and histology of the higher vertebrates A general introduction describes some of the most important techniques and contains much interesting information about electron microscopy, phase-contrast microscopy tissue-culture methods, histochemistry, histophotometry, differential centrifugation, and so on The three major sections that follow are devoted to the cell, to the structure of tissues, and to the aggregation of cells into organs and systems

The outstanding feature of the book is the abundance and magnificence of its illustrations These include some especially instructive diagrams, many stained sections beautifully reproduced in color, and some striking electron micrographs In many illustrations, unfortunately, the labeling imposes unnecessary strains on the eyesight and the patience of the student by making it necessary to match numbers or letters in the figure against their counterparts in the legend The method of direct labeling that has become practically universal in textbooks of gross anatomy deserves to be adopted also in microscopic anatomy, and in the present book it would occasionally result in actual saving of space The text is readable and interesting and there is a good index

Allergic Dermatoses due to Physical Agents Edited by Rudolf L Baer M D Associate Professor of Clinical Dermatology and Syphilology New York University Postgraduate Medical School New York [This material was published in *American Practitioner and Digest of Treatment* for August 1956] Cloth $3 Pp 110 with 3 illustrations New York University Press New York distributed by J B Lippincott Company 227-231 S Sixth St Philadelphia 5 2083 Guy St Montreal Canada Pitman Medical Publishing Co, Ltd 39-41 Parker St Kingsway London W C 2 England 1956

This is a small book containing six articles, each by a different contributor and each devoted to a different aspect of the general subject Dr Baer discusses the present status of differentiation of allergic and nonallergic hypersensitivity to physical agents, Dr Allan Lorincz contributes a chapter on hypersensitivity to trauma Dr Herman V Allington writes on eczematous and polymorphous hypersensitivity to light Dr Stephan Epstein discusses urticarial hypersensitivity to light, Dr Otis F Jillson takes up hypersensitivity to heat, and Drs Sylvia Griem and Stephen Rothman discuss cutaneous sensitivity to cold Each chapter has an up-to date bibliography It is questionable whether many of the conditions discussed arise on an allergic basis, but the contributors indicate the difficulty of coming to a decision concerning this The book is singularly free from typographical errors The only criticism is that the title on the cover of the book is merely Allergic Dermatoses, which is slightly misleading, in view of the limited scope of the monograph The book is highly recommended to dermatologists, allergists, and others interested in the cutaneous expressions of altered reactivity to physical agents

An Atlas of Diseases of the Eye Compiled by E S Perkins M B, F R C S and Peter Hansell M R C S F R P S Director, Departments of Illustration and Photography Westminster Medical School and Institute of Ophthalmology University of London With foreword by Sir Stewart Duke-Elder, K C V O, M A D Sc Cloth $10 Pp 91 with illustrations Little Brown & Company, 34 Beacon St Boston 6 J & A Churchill, Ltd 104 Gloucester Pl Portman Sq London W 1, England, 1957

It would require either an extensive private practice or affiliation with a very large charity institution to see and constantly keep in mind the fundus appearances in all systemic, local, and congenital ocular diseases Hence this atlas should be a welcome addition to any ophthalmologist's library The pictorial representations of normal, trivial, and abnormal findings in the fundi are supplemented by a lucidly and concisely written text The colored photographs and the drawings illustrating the important features of eye conditions are excellent This compact, beautifully illustrated, and well-written book should prove of value to the medical student, the general practitioner, the ophthalmological resident, and the ophthalmological clinician and teacher

QUERIES AND MINOR NOTES

ENDOMETRIAL HYPERPLASIA AT SIXTY YEARS OF AGE

To the Editor —*A 60 year-old woman has had three episodes of moderate uterine bleeding in the past six weeks Examination revealed a slightly enlarged uterus, which was corroborated by passing a sound The ovaries were not palpable Curettage was done The pathologist reported that there was some hyperplasia of the endometrium of adenomatous type and that this is a precancerous condition The patient had several bouts of hypertension over the past few years, but the blood pressure has stabilized at 140/80 to 170/90 mm Hg for the past six months Should she have a hysterectomy?* *M B , Canada*

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —Hyperplasia of the endometrium in a woman 60 years old is always significant, assuming that she has had no estrogen therapy Stimulation of the endometrium at this time of life may be the result of ovarian pathology in the form of a steroid-producing tumor, such as the granulosal neoplasm Novak has suggested that endometrial hyperplasia in the postmenopausal period may have carcinogenic implications in that there is a frequent coexistence of the two conditions

If this patient has a recurrence of her uterine bleeding, a complete hysterectomy and bilateral salpingo-oophorectomy is indicated If there is no further bleeding she should be kept under observation, and, if there is any change in her pelvic findings, surgery should be carried out

Answer —In seeking the cause for this patient's uterine bleeding, one considers malignancy, sex steroid stimulation, either intrinsic or extrinsic, benign tumors, and infection Infection and benign tumors are ruled out, the ovaries are "not palpable,' which somewhat lessens the possibility of a functioning tumor of the ovary, but one must definitely ascertain whether the patient has been taking any endocrine preparation If the bleeding is caused by hyperplasia of the endometrium, there is some basis for this histological change in the endometrium The pathologist's description of "hyperplasia of the endometrium of adenomatous type suggests that there is less stromal hyperplasia than is usually found The association of adenocarcinoma of the endometrium and endometrial hyperplasia is noteworthy The inquirer asks whether a hysterectomy should be performed, this consultant's answer is yes There are certain "ground rules, tissue committee studies, and other justifiable restraints, but most resolve into how many uterine curettages should be done before laparotomy is performed This patient should have a complete hysterectomy and bilateral salpingo-oophorectomy, provided that any endocrine therapy is ruled out

ABSENT PULSE WITH NECK BRUIT

To the Editor —*A 42-year-old man suffered a hemiplegia on the right side two years ago and made a good recovery with exception of moderate weakness of the involved extremities and a mild degree of aphasia Because he could not continue with his usual work and light work was not available to him, he has spent most of his time sitting about at home In the past year he has had episodes of syncope associated with change of position or prolonged standing he was treated with Neo-Synephrine (1 25 mg capsule three times a day) and Dexamyl (twice a day), with some improvement The patient's pulse is unobtainable at the right wrist, and a bruit is heard over the middle of the right sternocleidomastoid muscle There is reason to feel that these findings were not present prior to his stroke, although they were not picked up until six months afterward Cerebral arteriograms were negative, and the results of routine laboratory studies were not remarkable Blood pressure is normal as obtained in the left arm but unobtainable in the right The optic fundi are not remarkable What is the possible relation of the murmur in the neck and the absent radial pulsation in the right arm to the hemiplegia that occurred? Please give further suggestions relative to maintaining better vasomotor tone in this individual* *M D , Ohio*

This inquiry was referred to two consultants, whose respective replies follow —Ed

Answer —The absence of the radial pulse on the right side is undoubtedly due to some impaired circulation in the right arm This impairment, evidently, can be traced high up in the arterial tree and involves the large arterial trunks The fact that he has no blood pressure on the right side is confirmatory evidence that the circulation does not come through the right brachial artery An explanation for this impairment requires some comment It could be due to a gradually developing thrombosis of the brachial, the axillary, or the subclavian artery There is no mention made as to whether the subclavian pulse could be elicited on palpation It is doubtful whether the impaired circulation can be attributed to a marked arteriospasm in the absence of any history of a penetrating wound or some trauma It is possible to develop a gradual thrombosis of the brachial or axillary artery (crutch

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The answers here published have been prepared by competent authorities They do not however represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer's name and address, but these will be omitted on request arteritis) but there is no history of the patient s using crutches The impaired pulse probably cannot be attributed to the hemiplegia per se If the cause of the bruit in the neck on the right side can be determined, this may explain the impaired circulation in the arm and could explain the hemiplegia The bruit could be due to an aneurysm involving the large arterial structures the carotid or innominate artery An aneurysm could be due to either syphilis a toxic infectious condition or arteriosclerosis However aneurysms may develop as a result of some indeterminate factor When one aneurysm is present it is quite possible that another may exist in the vascular structures in the brain which could explain the hemiplegia, but according to the query the studies of the brain were unrevealing The bruit may be due sometimes to an arteriovenous fistula However such conditions are either congenital or acquired If it was acquired, there should be some history of a penetrating wound If it is congenital then it certainly is in an unusual site and would have been detected much earlier Perhaps there is a history of rheumatic heart disease, such a patient might have a dilated auricular appendage, in which area an embolus may develop and lodge into the brain area This consultant has seen this happen in two or three instances in younger patients, in whom hemiplegia could not be explained in any other manner Since this patient apparently made a good recovery except for moderate weakness of the involved extremities he should be encouraged to get about Physical therapy should be carried out and, if this patient is in a large center where there are some rehabilitation clinics that can give him the benefit of modern therapy, this would be very helpful If there is much general weakness and if the blood pressure is low, 10 mg of Ritalin two or three times a day may be helpful

Answer —This patient appears to have occlusion of the right subclavian artery and possible partial occlusion of the common carotid This could explain the absence of pulsations in the right arm and the bruit in the neck The findings in the right arm and neck are probably unrelated to the hemiplegia, but both may be the result of primary diffuse vascular disease such as atherosclerosis or arteritis An atherosclerotic plaque could occlude the right subclavian artery and partially occlude the common carotid However, it is most unusual to have atherosclerosis as a cause of upper extremity occlusion in a man as young as this Embolism is a more common cause for upper extremity arterial occlusion in a man of 42 This could also explain the hemiplegia as well as the bruit in the neck, which would occur if the common carotid were only partially occluded On the other hand, there is no evidence of a source for the embolus in the history and apparently in the examination However, blood clotting on a plaque in the ascending aorta and then being swept distally might explain the symptoms The possibility of early pulseless disease should be considered Paradoxic embolism from clots in leg veins going through a patent foramen ovale is a rare cause of emboli for which a source is not present in the heart At any rate, it would appear to be worthwhile to start anticoagulant therapy, with the patient ambulatory In addition, a low-fat and low-cholesterol diet may be indicated

In regard to the maintaining of vasomotor tone to prevent the syncopal episodes, this patient may be benefited by the use of an elastic support that covers not only both lower extremities but also the waist This type of support is obtainable from the Jobst Institute, P O Box 653, Toledo 1, Ohio, and is usually worn by patients who have extreme edema up to the hips The support may prevent the dumping of blood into the lower extremities when the patient sits up or stands Air-inflated suits are also obtainable, if the symptom is an incapacitating one The patient should also learn to sit up or stand up very gradually to allow time for adjustment of vasomotor reflexes

CONGENITAL THROMBOCYTOPENIC PURPURA

To the Editor —*The mother of an infant with congenital thrombocytopenic purpura is anxious for another baby What are the chances of this recurring?*

Ralph W Morrison Jr , M D , Johnstown, Pa

Answer —Congenital thrombocytopenic purpura occurs infrequently, but the literature contains many case reports and studies bearing on its pathogenesis It appears in infants born (1) of mothers with idiopathic thrombocytopenic purpura who either have had a splenectomy or are symptomless and unaware of a lowered platelet content (2) of normal mothers, and (3) of mothers with drug-induced thrombocytopenic purpura such as follows the ingestion of quinine

Current concepts implicate an immunoallergic mechanism in the causation of the disease in the infant For the mother with idiopathic thrombocytopenic purpura the transplacental passage of antibodies occurs into the fetal circulation These antibodies consist of autoagglutinins for the platelets of the mother and infant as well as isoagglutinins for each other s platelets In the case of a normal mother it has been postulated that she develops isoagglutinins for the baby s platelets, presumably on the basis of platelet incompatibility between mother and infant in a manner similar to erythroblastosis She may also have been sensitized to platelet antigen in a previous transfusion or pregnancy The precise nature of the immune substance is not always obvious

There have been several families in which consecutive babies have had neonatal thrombocytopenic purpura While the prognosis in the infant is usually good, with the restoration of a normal number of platelets within the first two or three weeks of life and usually not beyond three months, the course may not be benign When the pregnancy is associated with overt purpura, survival in the infant is jeopardized The early administration of vitamin K in moderate dosage is important because of the possibility of combined coagulation defects in addition to the thrombocytopenia If purpura is at all widespread and the platelets greatly reduced, steroid therapy is indicated Cortisone is administered, with approximately 40 mg given daily in divided doses for the first three or four days and the dose tapered off in the next two weeks, depending on the response Corticotropin (ACTH), approximately 20 mg daily in divided doses, given by injection, may be substituted for cortisone Hemorrhage may be controlled by these agents, with or without platelet response With bleeding or extensive purpura, transfusion of fresh blood is also necessary

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TREATMENT OF METASTATIC BONE LESIONS

To the Editor —*Please provide information on the treatment of metastatic bone lesions, following removal of cancer of the breast This concerns a 52 year-old woman who has had extensive x-ray treatment of the lesions as well as sterilization She has also received hormone and cortisone therapy Surgery of the adrenals or hypophysis is not contemplated at this time Have any of the radioactive substances been used successfully for this type of lesion?*

M D , Illinois

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —A combination of intensive testosterone therapy and intravenously administered radioactive phosphorus (P^{32}) has been reported as being effective in some patients with widespread bony metastases from cancer of the breast While objective remission has been noted after such combination therapy, it is not certain whether this be due to the high doses of the testosterone, the P^{32}, or the combination A radiologist who is participating in an active isotope program should be consulted regarding this treatment

Answer —The earliest report of the use of radioisotopes for the treatment of metastatic bone lesions due to carcinoma of the breast was by Friedell and Storaasli (*Am J Roentgenol* 64 599, 1950) Radiophosphorus was given to 12 such patients in divided doses over a period ranging from 22 to 60 days The total dosage of P^{32} was from 12 to 18 mc The results with P^{32} alone were not impressive, although most of the patients experienced some relief of bone pain There is reason to believe that a great many individual cases have been treated in this way No large series has been reported, and possibly none has been accumulated, presumably owing, on the one hand, to the serious hematological complications and, on the other hand, to the fact that the results approximated those from intensive androgen therapy alone A recent development, which has not been reported in the literature, is a brief, intensive therapy with androgens combined with P^{32} In theory, the large androgen dose encourages a positive calcium (and therefore also positive phosphorus) balance, and the anabolic effect of androgen drives phosphorus into the tumor tissues Remissions induced in this way seem to be better than those resulting from other forms of therapy, although no long-term evaluations have appeared The suggestion to combine androgen and P^{32} originated with Dr J R Maxfield, of Dallas, Texas To this consultant s knowledge, no other isotope has been used with any significant effect in the treatment of this type of metastatic bone cancer

UNUSUAL SYNCOPAL ATTACKS

To the Editor —*A 41-year-old man has had four attacks of temporary loss of consciousness during the past four months These occur only when he is standing and urinating At other times he appears and feels perfectly well, but he cannot tell when these attacks may occur Two of the attacks were a month apart, but the last two have been within one week Physical examination is entirely negative His blood pressure is 118/70 mm Hg, his heart is normal, and urinalysis is normal The patient has neither a personal nor a family history of epilepsy After one of these attacks he feels all right except for the occasional bruise that he gets from falling Please comment on this case*

George J Treires, M D , Lock Haven, Pa

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —Syncopal attacks in the male, at no time other than when he is standing urinating is indeed somewhat unique As a matter of interest, a canvass was made of several internists, neurologists, and urologists, each of long experience and professorial rank, and none had knowledge or memory of such a circumstance

In this patient it is assumed that the negative history (except for the attacks) has included interrogation as to other vasomotor symptoms and also an evaluation of the psychic make-up of the individual In like manner the negative physical examination' assumes careful study of the ocular fundi and urogenital tract and a reasonably full neurological examination It seems that attention should be drawn in this case to such conditions as are more apt to cause syncope when an individual assumes a relatively motionless standing position rather than syncope induced by the act of standing from a sitting or other position In the former, fainting is possible from a variety of conditions that essentially cause fall in blood pressure Among these is the common vasodepressor syncope, or common faint This is due often to such things as sudden emotion, extreme anxiety, fear, or sight of blood Here, however, there is usually a prodromal period of weakness and sweating for a minute or two If this patient initially had a purely fortuitous fainting attack while urinating it should be comparatively simple to determine whether he has developed an anxiety neurosis concerning the act Probably of more importance is the ruling out of a vasodepressor carotid sinus reflex syncope This condition is rare and is caused by an oversensitive carotid sinus in the neck While often no cause for this overactive nerve plexus is found, rarely tumors and aneurysmal vessel dilatations pressing on the plexus are discovered Pressure over this area can cause drop in blood pressure and pulse, with syncope The trigger mechanism in setting off the attack can be as simple as the wearing of too *tight a collar, turning the head to one side, or raising* the face upward Many men wear collars that are entirely too snug It is not uncommon for some men, while urinating, to strike a pose in which the face, for some unknown reason, is directed well toward the ceiling Such factors alone or in combination, might well play a definite part in initiating a carotid sinus syncope Diagnosis of irritable carotid sinus is usually made by pressure or stroking over the carotid sinus areas while observing the pulse and blood pressure This procedure must be done with the greatest caution and with the patient sitting in bed as fainting can occur from the maneuver Treatment of the condition can be as simple as prescribing a loose collar and giving atropine several times daily In severe cases, surgical stripping of the nerve plexus may be indicated Allied somewhat to the last-described syndrome and causing a short or momentary cardiac standstill is reflex vagotonia Vagal inhibition of the heart may arise from the gastrointestinal tract, nasopharynx, eye, ear, respiratory tract, and the abovementioned carotid sinus plexus The urogenital tract has not been mentioned in discussions of this subject True Stokes-Adams syndrome, of course, may cause syncope, but the pulse is usually slow between attacks Thorough studies of the patient should include an electrocardiogram, which may give a lead to coronary pathology or unsuspected aortic valve pathology

Simple orthostatic hypotensive syncope seems unlikely in this patient, but blood-pressure readings when he assumes the supine, sitting, and standing positions should be made Syncope from such causes as cerebral circulatory or metabolic disturbances or neoplasm, while not strongly indicated from the data given, must be given serious consideration, especially if no lead is obtained from the foregoing Here a competent neurologist, with the aid of an encephalogram, can pass on such possibilities as tumor, epilepsy, and psychic and autonomic seizures Should further history taking bring out the slightest abnormality in the genitourinary system, urologic survey would be in order

Answer —These episodes are either seizures or syncope In spite of absence of history, psychomotor seizures must be considered, and an electroencephalogram should be the primary test If abnormal spiking is present, one must unavoidably conclude that epilepsy is at the root of the trouble, especially since injury (bruising) occurs With a normal tracing, the possibility of such a rare condition as a ball-valve tumor of the fourth ventricle cannot be overlooked A detailed history is of major importance in differentiating between the two types of loss of consciousness In syncope, the individual realizes what is going to happen and what has happened, whereas in epilepsy the attack is sudden and there is frequently a slight retrograde amnesia One should know the timing of these attacks and if they occur at night, especially just after the patient has risen from a recumbent position, since orthostatic hypotensive syncope occurs when the victim is standing motionless, especially after he has *been recumbent*

The carotid sinus syndrome with syncope would occur if there had been a gain of weight and the wearing of a tight collar, with straining (elevation of diaphragm) or turning or raising of the head A further procedure would be to fill the bladder with 500 cc of isotonic sodium chloride solution while the patient is recumbent, attach the blood pressure cuff to his arm, and determine the pressure as the patient stands and empties his bladder rapidly through the catheter, which has been left in place Decompression syncope or shock, although rarer than formerly believed, does occur with sensitive vasovagal systems Evidence from any witness to an attack would be of immense value in determining the type but not the mechanism Finally, it should be remembered that one of the auras preceding a psychomotor attack is the sensation of urinating, although it does not occur at that precise time

VITAMIN E THERAPY

To the Editor —*Is vitamin E therapy of any importance in any cardiac involvement, fertility, sperm activity, increased physical stamina, or deficiency disease?* William H Wright, M D , Elmont, N Y

Answer —There is no firm clinical basis for the use of vitamin E in the treatment of cardiac disease Nor is there any scientific evidence to prove that vitamin E is of value in the treatment of infertility in either sex There is no valid reason to assume that vitamin E administration might lead to increased vigor or be of benefit in the management of deficiency diseases

GLYCOSURIA WITH NORMAL BLOOD SUGAR LEVELS

To the Editor —*During a physical examination for a life insurance company, a marked glycosuria was noted in a 52-year-old man who had had no symptoms at all A glucose-tolerance test with 70 Gm of glucose revealed a fasting blood sugar level of 125 mg and, two and one-half hours after ingestion of the sugar, of 140 mg per 100 cc The fasting and* *two and one-half hour urine specimen again showed marked glycosuria Is there any special significance to blood values so close to normal in the presence of marked glycosuria?*

Maurice B Cohen, M D, Wildwood, N J

Answer —In interpreting the blood sugar values it would be helpful to know whether they were determined by the Folin-Wu or comparable method or by a procedure that determines only true glucose However, in either case the results are abnormal If they were determined by the Folin-Wu method, they indicate borderline or 'mild diabetes If they represent true glucose values, then definite diabetes is present It would be helpful to know what the peak value was during the glucose-tolerance test

In addition, the patient would appear to have a renal threshold for sugar lower than the average normal This occurs in diabetic as well as in nondiabetic individuals The lowered renal threshold represents a deviation from the average normal and would have no special significance It does, however, make somewhat more difficult the control of diabetes, since, if one strives for absolute freedom from glycosuria, hypoglycemia is encountered From a practical standpoint, from simultaneous determinations of the amount of sugar in urine and blood one gains an idea as to the level of the renal threshold and the amount of sugar in urine to be expected at a given level of blood sugar With this in mind, if insulin is being used, one adjusts the dose to allow glycosuria to that extent suggested by this experience

RESIDUAL EFFECTS OF LIGHTNING INJURY

To the Editor —*A man, 36 years of age, was struck by lightning in August, 1955 He lost consciousness and, upon regaining consciousness, found himself in the hospital and was there for 32 days He had burns on both heels and was in an oxygen tent for several days He was unable to move his legs and unable to turn over in bed his right arm was weaker than the left He was blinded for approximately three weeks, and then his vision gradually returned He had soreness of the scalp and was unable to comb his hair without discomfort He now has fatigue and falls asleep whenever he sits down Since the accident he has dreams of storms, thunder, and lightning He awakens, is frightened, has to turn on all the lights, and is afraid to go to bed unless someone else is present in the room with him He complains of marked pain at the level of the fourth thoracic vertebra He has also become very suspicious of his employers and thinks that he is being persecuted by them What permanent effect will a stroke of lightning, or electric shock, have upon personality and the above-named symptoms?*

M D, Michigan

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —Case reports of neurological deficit after lightning stroke abound in the literature, a brief review of which may be found in Wilson's encyclopedic "Neurology (Baltimore, William Wood and Company, 1940, chap 99) Microscopic changes have been demonstrated in the nervous system of persons dying of, or immediately subsequent to, being struck by lightning However, residual symptoms, such as have been described here, are usually classified as a "traumatic neurosis'

This man deserves a thorough neurological and psychiatric examination Such laboratory studies as electroencephalography and projective psychological testing should be utilized It would be impossible to make a prognosis without such examinations, neither could a realistic program of rehabilitation be outlined without them Neurologists particularly would recognize what may be the syndrome of narcolepsy within the symptomatic galaxy (see Langworthy and Betz *Psychosom Med* 6 211, 1944)

Answer —A person struck by lightning receives an electric discharge of some millions of volts, which act for a small fraction of a second Acute changes occur in both the central and the peripheral nervous systems

In patients who survive, the residual lesions in the central nervous system are more probably due to damage of blood vessels and cerebral anoxemia secondary to temporary failure of respiration Petechial and gross hemorrhages have been observed in the brain and meninges Nerve-cell alterations and degeneration of the myelin sheath and axons can occur

Distinct clinical residuals may result from such electric shock, and sequelae may last for months or be permanent Such injuries may involve the spinal cord and brain, with motor residuals, including flaccid paralysis, sensory loss, papilledema, optic atrophy, and mental changes Neurotic symptoms frequently follow such an accident and are most difficult to differentiate from true organic residuals Emotional symptoms include insomnia, forgetfulness, fatigue, irritability, and anxiety The presence of persecution and paranoid ideas may be due to a basic personality disturbance activated by the electric trauma, rather than an organic lesion

INTRAVENOUS CHOLANGIOGRAPHY

To the Editor —*A 46-year-old man has had a series of three oral cholecystograms because of epigastric discomfort The first two series showed nonfunction, and the third series showed normal function Three days later he developed clinical jaundice, with an elevated serum alkaline phosphatase level and normal cephalin flocculation and thymol turbidity values The initial icteric index was 22 6, and this decreased slowly to 14 in five days The patient had received 10 mg of chlorpromazine (Thorazine) four times a day for four days six weeks prior to admission An intravenous cholangiogram was requested and refused by the radiologist on the grounds that the dye might increase the parenchymal damage Please provide an opinion on the following questions 1 Is the dye used in intravenous cholangiography damaging to liver cells, to normal cells, in partial obstruction of bile outflow, in hepatitis, and in chlorpromazine-induced jaundice? 2 Is a raised icteric index in the presence of a functioning extra-*

biliary system a contraindication to intravenous cholangiography? 3 Is intravenous cholangiography helpful in diagnosis of partial obstruction of the common duct? The patient s stools have remained normal in color The gastrointestinal series shows a normal duodenal loop There has been no weight loss or anorexia, and patient is now asymptomatic

Robert E Sandlin, M D , Antioch, Calif

ANSWER —1 There is no evidence that sodium iodipamide (Cholografin) or methylglucamine iodipamide (high potency Cholografin) are injurious to normal or damaged liver cells 2 An elevated icteric index is not considered a contraindication to intravenous cholangiography If the dye is not excreted through the biliary tract either because of hepatocellular impairment or extrahepatic or intrahepatic bile-duct obstruction, the dye is readily excreted by the kidneys A combination of marked renal and hepatic impairment can be considered a contraindication to intravenous cholangiography Intravenous cholangiography is generally not attempted in the presence of marked icterus because ductal visualization is rarely accomplished under such circumstances However, visualization of extrahepatic ducts has been reported with sodium iodipamide in a patient with a serum bilirubin level of 4 8 mg per 100 cc (Wise and O Brien *J A M A* 160 819 827 [March 10] 1956), and in another patient with a serum bilirubin level of 7 5 mg per 100 cc the ducts were visualized with methylglucamine iodipamide (Berk and others *Am J M Sc* 231 289, 1956) 3 If the obstruction of the common duct is accompanied by marked icterus, the probability of visualizing the extrahepatic duct by intravenous cholangiography is small However, as stated above, in mild to moderate hyperbilirubenemia the ducts are occasionally visualized, and in such instances this would be diagnostically helpful The ideal patient for intravenous cholangiography is one with disease of the extrahepatic ducts without icterus From the data given, a diagnosis of intrahepatic cholangitis due to chlorpromazine is most likely

SEQUELAE OF MENINGOCOCCIC MENINGITIS

To THE EDITOR —*Over 10 years have elapsed since many military personnel were successfully treated for meningococcic meningitis It was speculated, at the time of treatment, that possible neurological sequelae might develop in later years as a result of this usually fatal disease Are there any data available to confirm or deny this early speculation?*

Charles C Stehly, M D , Los Angeles

ANSWER —In 1953, a study was made of late complications in 178 cases of meningococcic meningitis that occurred during the period 1935-1945 Of these patients, 49 5% reported postrecovery symptoms of one type or another The remaining 50 5% denied any aftereffects upon recovery

Headache was the most frequent complication (32%), and, of these headaches, 77 7% were localized, most frequently to the occipital area Hearing loss or impairment occurred in 12 3% of the patients, of whom 57% had bilateral involvement, the degree of involvement differed in the two ears in about two-thirds of the patients Only 14% of these patients were benefited by hearing aids Fifty per cent of the patients reported improvement in hearing in time from their original impairment Other neurological sequelae were fainting spells (3 9%) and convulsions, which occurred in one patient during hot weather Non-neurological residuals were joint pain, muscle pain, and muscle twitches, these make up the remaining complications Two-thirds of the patients with sequelae reported an exaggeration of symptoms under certain circumstances, such as changes in weather, altered work conditions, exercising, and drinking of large quantities of salt-free water

References

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Fox M J Penicillin in Treatment of Meningitis, Wisconsin M J **44** 1161 1945

CALCIUM AND PHOSPHORUS IN PREGNANCY

To THE EDITOR —*My attention was called recently to the query in* THE JOURNAL *for July 14, 1956, page 1117, regarding calcium and phosphorus in pregnancy The question of the extent of mineral intake and its balance in pregnancy is of interest to the dentist because of the fact that a notable amount of calcification of the deciduous teeth takes place during intrauterine life Clinical evidence has shown that these teeth vary in structural soundness and susceptibility to caries from child to child I base this comment on observations made at the Guggenheim Dental Clinic in New York City, of which I was director for many years*

It seems logical to assume that the best chance of the child s having sound deciduous teeth is when the optimal amounts and proportions of these minerals, as well as other elements, are provided for the pregnant woman

The answer states that it seems advisable not to administer phosphorus-free calcium, since either calcium or phosphorus, when fed in excess, causes an increased excretion of the other element The consultant then goes on to state that the pregnant woman should have a daily intake of 1 5 Gm of calcium and approximately as much phosphorus The proportion of these elements in milk (1 15 Gm of calcium and 0 908 Gm of phosphorus) undoubtedly is excellent and apparently should be maintained in the diet as a whole However, this proportion is upset when bread and cereals are added to the diet in any considerable amount, as often happens These foods make their own valuable contribution to the daily menu, but they do present a great preponderance of phosphorus over calcium, thus tending to create the danger mentioned

In view of this fact, it would seem to me that calcium supplementation of the diet might well consist of administration of calcium salts such as *the gluconate or lactate, in reason, without fear that the diet as a whole will be too low in phosphorus I would appreciate your comment on this*

John Oppie McCall, D D S
944 Park Ave
New York

The above comment was referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*The correspondent writing the letter is correct when he states that if grain products such as bread and cereals make up a significant part of the diet the amount of phosphorus they contain would have a demonstrable effect on the calcium-phosphorus ratio However, it should be pointed out that the phosphorus present in grains is largely in the form of phytic acid Calcium phytate is highly insoluble, so the ingestion of phytic acid usually results in the loss of its own phosphorus together with calcium supplied by other foods, except as vitamin D present makes some of the phytic acid phosphorus available Therefore, the correspondent is right when he claims that the phosphorus-calcium ratio would be altered, but it would not be because of an excess of phosphorus but because the form of the phosphorus acts to make both it and some of the dietary calcium unavailable In those cases where grains do make up a large part of the diet the use of some calcium salt might be desirable In England, calcium carbonate is added to the flour in sufficient quantities to compensate for the phytic acid content*

BIOLOGIC FALSE-POSITIVE SEROLOGIC REACTIONS

To the Editor —*In* The Journal *for Feb 9, 1957, page 516, there appears a query concerning biologic false-positive serologic reactions The inquiring physician is interested in the incidence of this phenomenon and wonders if the frequently quoted' figure, '40%," is correct Neither of the two consultants seemed to make clear the correct answer to the question concerning 40%' Since I am responsible for the data in question, it would be desirable for me to amplify the answer to the query I have said that, of positive serologic tests (with standard lipid antigens) routinely discovered (e g , in premarital, preemployment, prenatal, pretransfusion, and other such routine tests) in persons who give no history of infection with syphilis and of no reasonable exposure to it and who present no physical evidence of the infection, about 40% of these seropositive reactors do not have syphilis but are instead biologic false-positive reactors This statement is limited to white persons of the upper educational and socioeconomic level drawn from the population of the northern United States*

The identification of such persons as biologic false-positive reactors is accomplishable by means of serologic testing with any one of the variety of techniques utilizing antigens prepared from Treponema pallidum The mere identification of the patient as a biologic false-positive reactor does not, however, differentiate between the benign acute biologic false-positive reaction, which has no significance for the patient's subsequent health, and the chronic biologic false-positive reaction, which is of major significance to his health

J E Moore, M D
The Johns Hopkins Hospital
Baltimore 5

CHROMHIDROSIS

To the Editor —*Concerning the query (*J A M A **163** *703 [Feb 23] 1957) on chromhidrosis, it is suggested that the physician test the patient's urine with dilute ferric chloride solution to rule out alkaptonuria The gray discoloring of clothing is* common to this disease

R de R Barondes, M D
1031 S Broadway
Los Angeles 15

To the Editor —*In the Query and Minor Note in* The Journal, *Feb 23, 1957, page 703, entitled 'Chromhidrosis," the consultant did not mention two conditions that may rarely be associated with this symptom A patient with acute intermittent porphyria presented the interesting story that his clothing and bedclothes were stained brown for several years preceding the onset of his abdominal pains that led to the diagnosis A patient having ochronosis with alkaptonuria observed that his sweat had discolored his clothing as long as he could remember The search for etiological agents of chromhidrosis is simplified if the patient should have either of these conditions*

Frank L Iber, M D
The Johns Hopkins Hospital
Baltimore

The above comments were referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*The available books on dermatology do not list alkaptonuria or porphyria as causes of chromhidrosis All these named entities are comparatively unusual Unless the sweat itself reacted to tests for porphyria or alkaptonuria, these reports would not establish a conclusive relationship between the discolored sweat and the entities under consideration After all, the patient could have ochronosis plus chromhidrosis due to other causes such as the ingestion of a chromogenic drug However, by anology with the excretion of these substances in the urine by patients with porphyria and ochronosis, it seems likely that these metabolic disturbances could lead to discolored perspiration A bluish sweat due to the presence of iron salts may occur in hemochromatosis The observations of the correspondents are of great interest and increase our knowledge of this poorly understood but, fortunately, rare condition*

« Washington News »

Library of Medicine Regents Pick Site • •
Budget-Cutting Major Topic of Chamber • •
Folsom Suggests More Interest in Health • •
PHS Launches National Health Survey • •
Salk Vaccine Supply Increasing • •
House Group Discusses Safety Belts • •
Mental Health Week Activities • •

NATIONAL LIBRARY OF MEDICINE BUILDING IN BETHESDA

A new building to house the National Library of Medicine, created last year out of the Armed Forces Medical Library, will be constructed at Bethesda, Md , on the grounds of the U S National Institutes of Health

Bethesda, a Washington, D C , suburb, was selected by the library s regents at their second meeting Under the law creating the library, the surgeon general of the Public Health Service was authorized to select the site in accordance with the direction of the board Ten of the 17 members of the board are appointed by the President, with the remainder consisting of federal officials serving ex officio The chairman is Dr Worth B Daniels of Georgetown University Medical School, Lieut Col Frank B Rogers, who was head of the Armed Forces Medical Library, is director of the National Medical Library and secretary of the board of regents

Late in the last session of Congress, before the act creating the library had been passed, Illinois members of Congress and a group of officials and medical leaders from Chicago put on a campaign to win the building for that city Up to that time it had been assumed it would be located in the Washington area, which was designated by one of the bills under consideration

When the bill was enacted, however, the controversy was bypassed by leaving the selection up to the board

Congress last year authorized the spending of money for surveys and site selection, but did not appropriate money for construction, nor is construction money contained in the Public Health Service budget, which has passed the House and now is before the Senate Appropriations Committee Now that a site has been chosen, there is a possibility that the Senate committee will add construction money to the PHS budget

'In arriving at its decision,' an announcement from the PHS says, the board considered both area and specific site Since government agencies in the Washington area are among the major users of the library s services, the board concluded that any move outside this area would lead to costly duplication of services In addition, the board agreed that moving the library s extensive collection of books and other materials would entail an expense that was not justified'

According to the PHS, the Association of American Medical Colleges and the Association of American Dental Schools both favored the Washington area, whose advantages, the board decided, "far outweighed those of other locations'

The Bethesda site was chosen over others in the Washington area because of a number of factors, including proximity to two large medical centers (NIH Clinical Center and Bethesda Navy Hospital), availability of sufficient land for future expansion, a good network of transportation, suitable terrain, supporting services and facilities, and parking room

CHAMBER HEARS OF BUDGET ECONOMY HOPE

Leaders in both parties believe the total federal budget can be cut by at least 3 billion dollars despite administration insistence that the scale of spending is necessary and sound Predictions of reductions in the budget starting July 1 were made at the 45th annual meeting of the U S Chamber of Commerce, held in Washington Senator Knowland (R , Calif) told the delegates he believed a 3-billion-dollar cut could be made in the 71 8-billion-dollar total Senator Mansfield (D , Mont) agreed

Senator Byrd (D , Va) went much farther than any other economy advocate, telling the chamber that the budget should be cut back to 1955 spending, which would mean a reduction of 7 2 billion dollars If that is done, he said, Congress could cut taxes by 6 3 billion dollars Senator Byrd described the administration s proposed budget as 'the most irresponsible budget submitted in my day

Vice-president Nixon spoke on behalf of the administration, reminding the businessmen that about 60% of the budget reflects spending for national security He also reminded them that the President has given them the biggest tax cut in history and pressing for new savings

Senator Knowland forecast that federal construction aid to schools would not pass, but he made no prediction about bills pending in House and Senate for construction grants for medical schools Legislation probably will be approved, he added, to regulate union and other pension and welfare funds Commenting on proposals for a four-year program for general school construction aid, the California senator said "My practical knowledge of Washington leads me to the conclusion that nothing terminates in four years And I have never seen the federal government contribute money without wanting to exercise control

SECRETARY FOLSOM'S ADVICE TO BUSINESSMEN

Secretary Folsom believes businessmen should take the same lively interest in programs dealing with health, education, and economic security as they do in those involving taxes' If the business community wants federal activities in these fields held to a minimum, he told a business group then businessmen should lead and support efforts in these fields by private enterprise, voluntary organizations, and state and local governments

He outlined his views in a talk before the Midwest Business Conference of Harvard Business School 'The question is not whether genuine needs will be met,' Mr Folsom said, "but how if the needs are not met in one way, sooner or later the people will see that they are met in another'

From the Washington Office of the American Medical Association

The head of HEW asked the business leaders to what extent their firms have provided private pension plans for old age, controls for water and air pollution from industrial wastes, safety programs, and support to training and education of people with technical skills

Urging preventive programs in the welfare fields, he cited two items in the proposed 1958 budget (*a*) 2 million dollars for research on why people become dependent on public welfare and (*b*) $2,500,000 for training more professional workers to help persons on assistance build financial independence Mr Folsom also noted the heart research studies and the rehabilitation program as examples of constructive welfare In the 1958 budget, he noted 1 5 billion dollars, or 65%, is assigned to public assistance to the needy, aged, blind and disabled, and to dependent children

NATIONAL HEALTH SURVEY UNDER WAY

The National Health Survey, the most ambitious ever undertaken, has begun It was launched May 6 with 106 professional interviewers ringing doorbells in sample areas of the 48 states The survey is a continuing thing, and each month a different group of householders will be visited

Information being collected by the Public Health Service includes statistics on the number, age, sex, and other personal characteristics of people suffering from various diseases, injuries, or handicapping conditions Also sought are length of time these persons have been prevented from carrying on their usual occupations or activities, and the volume of medical and dental care received

Statistics will be compiled both for the nation as a whole and for each of 11 geographical regions Data from the regions will be grouped by large metropolitan areas, other urban areas, and rural areas Additionally, statistics will be compiled for eight cities having more than 2 million population—New York, Chicago, Los Angeles Philadelphia, Detroit, San Francisco, Boston, and Pittsburgh

Surgeon General Burney points out "This survey is a most important step in the health field The information it will provide is long overdue For many years, physicians, research workers, insurance companies, hospital personnel and others concerned with health have been in urgent need of facts on the health of the general population"

Actual sampling is being done by Bureau of the Census The survey was authorized by the last Congress

SALK VACCINE SUPPLY CONTINUES TO INCREASE

Latest statistics from the Public Health Service show 8,200,000 cc of Salk vaccine on hand for the week ending April 19, compared with 6,300,000 the week before and 4,700,000 the first week in April

Of the April 19 inventory, 4,500,000 cc was in the hands of manufacturers and 3,700,000 in warehouses, pharmacies, health departments, and doctors' offices

Production of 12,283,785 cc during April alone compares with just under 15 million produced in the three previous months of this year During the week of April 26 a total of 3,918,240 cc of vaccine was released by the PHS

REPORT ON SAFETY VALUE OF AUTO BELTS

Two auto researchers report that use of the safety belt reduces human injuries in auto accidents by 60% The two are John O Moore, director of automotive crash injury research at Cornell University, and Edward R Dye, head of safety design and development at Cornell's aeronautical laboratory They presented their views before a House subcommittee that is considering federal legislation to promote auto safety

Mr Moore said that, of more than 12,000 auto accidents screened last year, 81 cars where safety belts were used were selected for matching against similar cars in similar accidents where the belts were not used The finding was that passengers or drivers protected by safety belts suffer 60% less injury The safety belts are not a panacea, Mr Moore said, but they 'definitely are a factor in reducing injuries'

Mr Dye admitted that a form of harness is more effective than the lap belt, but that people are reluctant to be strapped in that way and that the harness cost (about $500 per car) also retards its general adoption He said no one wearing a lap belt is ever injured by the belt itself

Answering some published criticism of the belt, the witnesses said these opposition claims were based on tests with cars carrying dummies running up against solid obstacles, a form of accident that accounts for only 16% of recorded auto mishaps

The Cornell research project, sponsored by the university's medical college, has the cooperation of 14 states and receives support from Defense Department, Public Health Service, state agencies, and the automotive industry A number of other states have indicated they wish to participate

It is not anticipated that the committee will take action this session Hearings may be continued after Congress adjourns, with some possibility that the investigation will look into the relationship between tranquilizing drugs and accidents

MENTAL HEALTH WEEK

During Mental Health Week, Vice-president Nixon and Senator Smathers (D, Fla) joined in launching a nationwide fund-raising drive for research on and prevention of mental illness Senator Smathers, sponsor of Mental Health Week resolution in Congress, called this the 'No 1 illness in the United States today'

As the observance began, the Red Cross noted its volunteers spent 484,000 hours in civilian mental institutions assisting in the rehabilitation of patients in 1956, a substantial increase over the previous year The increase is due to the larger number of local chapters instituting programs of volunteer service with local hospitals

Mr Nixon urged everyone to make contributions "which will help these people (through such programs as the Red Cross's) in our communities"

MISCELLANY

Russia officially has returned to the World Health Organization after an absence of eight years Accusing WHO of anticommunist policies, all Soviet-bloc countries walked out in 1949 Albania, Bulgaria, and Poland recently resumed membership, and Czechoslovakia, Hungary, Rumania, Ukraine and White Russia are expected back soon

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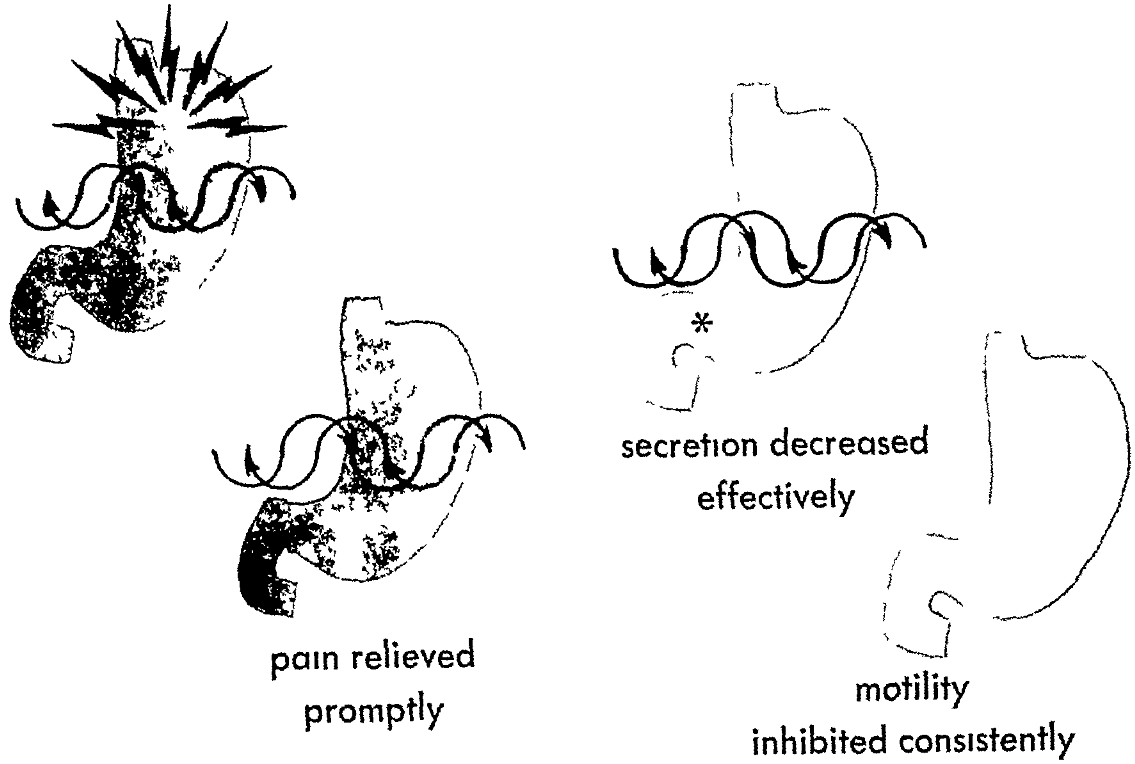

Among the many clinical indications for Pro-Banthine (brand of propantheline bromide), peptic ulcer is foremost Pro-Banthine has been shown repeatedly to be a singularly valuable agent when used in conjunction with diet, antacids, sedation and psychotherapy as required Lichstein and his associates[1] report that Pro-Banthine "proved almost invariably effective in the relief of ulcer pain, in depressing gastric secretory volume and in inhibiting gastrointestinal motility The incidence of side effects was minimal "

The therapeutic utility and effectiveness of Pro-Banthine in the treatment of peptic ulcer are repeatedly confirmed in the medical literature Dosage One tablet with each meal and two tablets at bedtime

G D Searle & Co , Chicago 80, Illinois
Research *in* the Service of Medicine

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[1] Lichstein, J , Morehouse M G and Osmon, K L Pro-Banthine in the Treatment of Peptic Ulcer A Clinical Evaluation with Gastric Secretory, Motility and Gastroscopic Studies Report of 60 cases Am J M Sc *232* 156 (Aug) 1956

SEARLE

(From a case report by the patient s physician unposed photos of Mrs M.F taken during an interview with the physician)

Patient Mrs M F

History "Her periods had dwindled and suddenly, in three months' time, ceased completely Simultaneously, hot flashes, band-like headaches, aches and pains, sweating, and a nasty disposition appeared She was forty-five years of age, and beginning to be fat, flabby and lackadaisical "

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MEETINGS

AMERICAN MEDICAL ASSOCIATION Dr George F Lull, 535 North Dearborn St Chicago 10 Secretary

1957 Annual Meeting New York June 3 7
1957 Clinical Meeting Philadelphia Dec 3 6
1958 Annual Meeting San Francisco June 23 27
1958 Clinical Meeting Minneapolis Dec 2 5
1959 Annual Meeting Atlantic City, June 8-12
1959 Clinical Meeting Dallas Texas Dec 1-4

AMERICAN

May

Alaska Territorial Medical Association Elk's Club Ketchikan May 29-31 Dr Robert B Wilkins 1121 Fourth Ave Anchorage Secretary

American College of Cardiology Hotel Willard Washington D C May 15 18 Dr Philip Reichert Empire State Bldg New York 1 Secretary

American College of Chest Physicians Hotel Commodore New York May 29 June 2 Mr Murray Kornfeld 112 E Chestnut St Chicago 11 Executive Director

American Gastroenterological Association Broadmoor Hotel Colorado Springs Colo May 17 18 Dr H Marvin Pollard University Hospital Ann Arbor Mich Secretary

American Gastroscopic Society Broadmoor Hotel Colorado Springs Colo May 16 Dr C Wilmer Wirts 1025 Walnut St Philadelphia 7 Secretary

American Geriatrics Society Waldorf Astoria New York May 30 31 Dr Richard J Kraemer Greenwood R I Secretary

American Goiter Association Hotel Statler New York May 28-30 Dr John C McClintock 149½ Washington Ave Albany N Y Secretary

American Gynecological Society The Homestead Hot Springs Va May 27 29 Dr Andrew A Marchetti 3800 Reservoir Road N W Washington 7 D C Secretary

American Medical Women's Association Barbizon Plaza New York May 30 June 2 Miss Lillian T Majally 1790 Broadway New York 19 Executive Secretary

American Ophthalmological Society The Homestead Hot Springs Va May 30 June 1 Dr Maynard C Wheeler 30 W 59th St New York 19 Secretary

American Psychiatric Association Morrison Hotel Chicago May 13-17 Dr William Malamud 80 E Concord St Boston 18 Secretary

American Radium Society Quebec City Canada May 30 June 1 Dr Theodore R Miller 139 E 36th St New York 16 Secretary

American Society of Maxillofacial Surgeons Minneapolis May 12 15 Dr John A Drummond 1414 Drummond St Montreal Quebec Canada Secretary

American Society for the Study of Sterility New York May 31-June 2 Dr Herbert H Thomas 920 S 19th St Birmingham 5 Ala Secretary

American Therapeutic Society Essex House New York May 30 June 2 Dr Oscar B Hunter Jr 915 19th St N W Washington 6 D C Secretary

Catholic Hospital Association of the United States and Canada Hotel Statler Cleveland May 27-30 Mr M R Kneifl 1438 S Grand Blvd St Louis 4 Executive Secretary

Eastern Surgical Society University of Virginia Medical School Charlottesville Va May 16 18 Dr Howard Ulfelder 264 Beacon St Boston 15 Mass Secretary

Illinois State Medical Society Hotel Sherman Chicago May 21 24 Dr Harold M Camp 224 S Main St Monmouth Secretary

Massachusetts Medical Society Hotel Statler Boston May 21 23 Dr Robert W Buck 22 The Fenway Boston 15 Secretary

Minnesota State Medical Association Hotel St Paul St Paul May 13 15 Mr R R Rosell 496 Lowry Medical Arts Bldg St Paul 2 Executive Secretary

Mississippi State Medical Association Hotel Buena Vista Biloxi May 14 16 Mr Rowland B Kennedy P O Box 4322 Jackson Executive Secretary

Nebraska State Medical Association Hotel Paxton Omaha May 13 16 Dr R B Adams 1315 Sharp Bldg Lincoln 8 Secretary

New Mexico Medical Society Santa Fe May 15 17 Mr Ralph R Marshall 221 W Central Ave Albuquerque Executive Secretary

New York Medical Society of the State of Hotel Statler New York City May 13 15 Dr Walter P Anderton 386 Fourth Ave New York City 16 Secretary

North Dakota State Medical Association Gardner Hotel Fargo May 25 28 Mr Lyle A Limond Box 1198 Bismarck Executive Secretary

Ohio State Medical Association Neil House and Veterans Memorial Building Columbus May 14 16 Mr Charles S Nelson 79 E State St Columbus 15 Executive Secretary

Society of Neurological Surgeons Chase Park Plaza Hotel St Louis May 17-18 Dr Bronson S Ray 525 East 68th St New York 21 Secretary

South Dakota State Medical Association Cataract Hotel Sioux Falls May 18 21 Mr John C Foster 300 1st National Bank Bldg Sioux Falls Executive Secretary

The Endocrine Society Hotel New Yorker New York May 30-June 1 Dr Henry H Turner 1200 N Walker St Oklahoma City 3 Secretary

United States Section International College of Surgeons Regional Meeting Eastern Whiteface Inn Lake Placid N Y May 30-June 1 Dr James P Fleming 125 Meigs St Rochester 7 N Y General Chairman

Western Branch American Public Health Association Lafayette Hotel Long Beach Calif May 29 June 1 Mrs L Amy Darter 2151 Berkeley Way Berkeley 4 Calif Secretary

June

American Academy of Tuberculosis Physicians Henry Hudson Hotel New York June 1 Dr Oscar S Levin P O Box 7011 Denver 6 Secretary

American Association of Neuropathologists Claridge Hotel Atlantic City N J June 16-17 Dr Leon Roizin 722 W 168th St New York 32 Secretary

American College of Angiology Plaza Hotel New York June 1 2 Dr Alfred Halpern 15 East 62d St New York 21 Executive Secretary

American Diabetes Association Hotel Commodore New York June 1 2 Dr Franklin B Peck Sr 1 East 45th St New York 17 Executive Secretary

American Hearing Society St Louis June 5 9 Mr Crayton Walker 1800 H St N W Washington 6 D C Executive Director

American Neurological Association Hotel Claridge Atlantic City N J June 17-19 Dr Charles Rupp 133 S 36th St Philadelphia 4 Secretary

American Orthopedic Association The Homestead Hot Springs Va June 24-27 Dr Harold A Safield 715 Lake St Oak Park Ill Secretary

American Pediatric Society La Playa Hotel Carmel Calif June 17 19 Dr A C McGuinness 1427 I St N W Washington 5 D C, Secretary

American Physicians Art Association Plaza Hotel New York June 3 7 Dr Francis H Redewill Jr 124 East Hadley St Whittier Calif Secretary

American Rheumatism Association Royal York Hotel Toronto Ont Canada, June 23-28 Dr Edward F Hartung 580 Park Ave New York 21 Secretary

American Society of Facial Plastic Surgery Biltmore Hotel, New York June 5 Dr Samuel M Bloom 123 E 83d St New York 28 Secretary

Association for Research in Ophthalmology Park Sheraton Hotel, New York June 3 Dr Lorand V Johnson 10515 Carnegie Ave Cleveland 6 Secretary

Conference of Presidents and Other Officers of State Medical Associations Waldorf Astoria New York June 2 Mr James A Waggener 1021 Hume Mansur Bldg Indianapolis 4 Secretary

Idaho State Medical Association Sun Valley June 16 19 Mr Armand L Bird 364 Sonna Bldg Boise Executive Secretary

Maine Medical Association The Samoset Hotel Rockland June 23 25 Dr Daniel F Hanley Dudley Coe Infirmary Bowdoin College Brunswick Executive Director

North American Chapter International Society of Angiology Biltmore Hotel New York June 1 Dr Henry Haimovici 105 E 90th St., New York 28 Secretary

Society of Biological Psychiatry Claridge Hotel Atlantic City N J June 15 16 Dr George N Thompson 2010 Wilshire Blvd Los Angeles 57 Secretary

Society for Investigative Dermatology Belmont Plaza Hotel New York June 1 2 Dr Herman Beerman 255 S 17th St Philadelphia 3 Secretary

Society of Nuclear Medicine Skirvin Hotel Oklahoma City June 20 23 Dr Robert W Lackey 452 Metropolitan Bldg Denver Secretary

Society for Pediatric Research La Playa Hotel Carmel Calif June 16 21 Dr Sydney S Gellis 330 Brookline Ave Boston 15 Secretary

Society for Vascular Surgery Biltmore Hotel New York, June 2 Dr Henry Swan 4200 E 9th Ave Denver 20 Secretary

The University of Michigan Regional Conference on Hypertension Ann Arbor Mich June 7-8 Dr John Sheldon Univ of Michigan Medical School Ann Arbor Mich Director

Woman's Auxiliary to the American Medical Association Roosevelt Hotel New York June 3 7 Miss Margaret Wolfe 535 N Dearborn St. Chicago 10 Secretary

Wyoming State Medical Society Jackson Lake Lodge Moran June 16 19 Mr Arthur R Abbey Box 2036 Cheyenne Executive Secretary

INTERNATIONAL AND FOREIGN

May

Congress of French Chapter International College of Surgeons Reims France May 24 26 1957 Dr Darget 17 rue Casteja Bordeaux (Gironde) France Secretary General

Congress of French Society of Ophthalmology Paris France May 12-16 1957 Dr Marcel Kalt 81 rue Saint Lazare Paris 9e France Secretary

Congress of International Association for Study of the Bronchi, Lisbon Portugal May 25 26 1957 For information address Prof F Lopo de Carvalho 138 rua de Junqueira Lisbon Portugal

International Conference on Audiology Chase Hotel St Louis Mo U S A May 13 16 1957 For information address Dr S Richard Silverman Central Institute for the Deaf 818 South Kingshighway St Louis Mo U S A

International Congress of International Society of Bronchoesophagology Philadelphia Pennsylvania U S A May 12-13 1957 Dr Chevalier L Jackson 3401 North Broad St Philadelphia 40 Pennsylvania, U S A Secretary

International Congress for Social Medicine Vienna Austria May 30 June 2 1957 Secretariat Prof Dr T Antonione Vienna 9 Spitalgasse 23 Austria

International Voice Conference (Laryngeal Research Function and Therapy) Chicago Illinois U S A May 20 22 1957 For information address Dr Hans von Leden 30 North Michigan Ave Chicago 2 Illinois U S A

World Congress for Acupuncture Vienna Austria May 25-28 1957 For information address Austrian Association for Acupuncture XV, Schwenderstrasse 57 Vienna Austria.

June

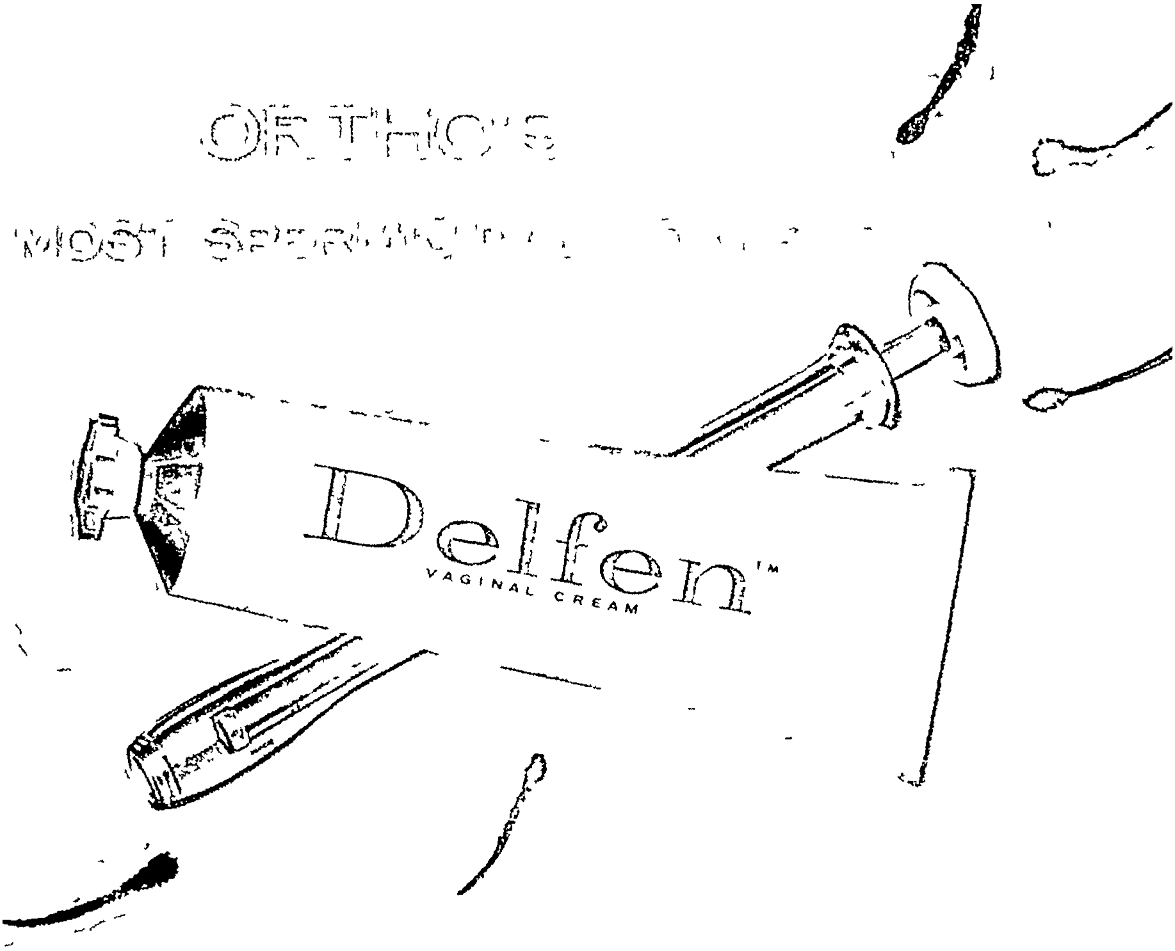
Canadian Medical Association Edmonton Alberta Canada, June 17 21, 1957 Dr A D Kelly 150 St George Street Toronto 5 Ont. Canada General Secretary

International Congress on Medical and Scientific Film Palace of Expositions at the Valentino Turin Italy June 1 9 1957 For information address Secretariat Minerva Medica Corso Bramante 83 85 Turin Italy

(Continued on page 28)

ORTHO'S

MOST SPERMICIDAL [illegible]



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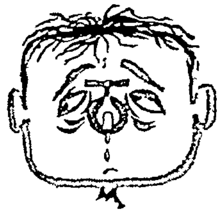
Behne, D ; Clark, F ; Jennings, M.; Pallais, V ; Olsen, H.; Wolf, L., and Tyler, E. T West J Surg 64 152 1956

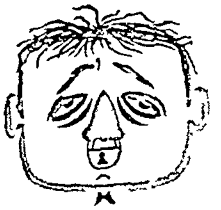
Composition nonylphenoxypolyethoxyethanol 5% in an oil-in-water emulsion at pH 4.5

in seasonal allergies

...as in colds



you can check excessive irritant secretions



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International Congress on Rheumatic Diseases Toronto Ont Canada June 23 28 1957 For information address International Congress on Rheumatic Diseases P O Box 237 Terminal A Toronto Ont Canada

International Convention of X Ray Technicians Sheraton Park Hotel Washington D C U S A June 8-13 1957 Miss Leslie A Majors R T 5710 Newton St Cheverly Md U S A Chairman Publicity Committee

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International Congress of Psychology Brussells Belgium July 28 Aug 3 1957 Dr M Louis Delys 296 Ave des Sept Bonniers Forest *Brussels* Belgium Secretary General

International Gerontological Congress Merano Bolzano Italy July 14-19, 1957 For information address *Segreteria Quarto Congresso* Internazionale de Gerontologia Viale Morgagni 85 Firenze Italy

International League Against Epilepsy Brussels Belgium July 21 28 1957 Dr Radermecker Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Meeting on Forensic Pathology Brussels Belgium July 20 21 1957 For information address Dr F E Camps Dept of Forensic Medicine The London *Hosp Medical College* Turner St London E1 England or Dr Arthur H Dearing Executive Secretary College of American Pathologists 2115 Prudential Plaza Chicago 1 Ill U S A

International Neurological Congress Brussels Belgium July 21-28 1957 Dr Ludo *van Bogaert* Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Poliomyelitis Conference *Geneva Switzerland* July 8 12 1957 Secretariat Hotel du Rhone Geneva Switzerland

International Psychoanalytical Association Paris France July 28 Aug 1 1957 For information write Dr S Nacht 187 rue St Jacques Paris France

International Society of Geographical Pathology Paris France July 9 11 1957 For information address Dr J P Hardouin 21 Avenue Pierre de Serbie Paris 16 France

International Society for the Welfare of Cripples London England July 22 27 1957 For information address Miss M Drury 34 Eccleston *Square* London S W 1 England

International Symposium on Medical-Social Aspects of Senile Nervous Diseases Venice *Italy July 20 21 1957* For information address Secretariate Viale Morgagni 85 Firenze Italy

Neuroradiologic Symposium Brussels Belgium July 21-28 1957 For information address Professor Melot Hôpital Universitaire St Pierre Brussels Belgium Secretary General

August

Argentine Congress of Gastroenterology *Salta* Argentina S A Aug 12-17 1957 Secretariat Avenida Santa Fe 1171 Buenos Aires Argentina, S A

Congress of International Society for Cell Biology St Andrews Fife Scotland Aug 28 Sept 3 1957 Prof H G Callan Bell Pettigrew Museum The University *St* Andrews Fife Scotland Secretary General

(Continued on page 30)

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WORLD FEDERATION FOR MENTAL HEALTH Copenhagen Denmark Aug 11-17 1957 Miss E M Thornton M A 19 Manchester St London W 1 England Secretary General

September

CONGRESS OF INTERNATIONAL SOCIETY OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY Barcelona Spain Sept 16 21 1957 For information address International Society of Orthopedic Surgery and Traumatology 34 rue Montoyer Brussels Belgium

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INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY Beograd and Opatija Yugoslavia Sept 29 Oct 5 1957 Colonel Dr Aleksandar Mezic rue Nemanjina 15 Beograd Yugoslavia Secretary General

INTERNATIONAL CONGRESS OF PSYCHIATRY Zurich Switzerland Sept 1-7 1957 For information write Prof J Wyrsch Stans (Lucerne) Switzerland

INTERNATIONAL SYMPOSIUM OF MEDICINE AND SOCIAL HYGIENE Trieste September 6 12 1957 Dr Mario Lovenati Via Cavana 18 Trieste Secretary General

WORLD MEDICAL ASSOCIATION Istanbul Turkey Sept 29 Oct 5 1957 Dr Louis H Bauer 10 Columbus Circle New York 19 New York U S A Secretary General

MAGAZINE—TELEVISION REPORT

The following list of current medical articles in mass circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported*

TELEVISION

Tuesday, May 14

NBC-TV, 9 p m EDT The Jane Wyman Show will present a story about a woman psychiatrist who helps a successful young actor solve an emotional problem concerning a woman he loves

Sunday, May 19

ABC-TV, 4 30 p m EDT Medical Horizons will go to the Brooke Army Medical Center, Fort Sam Houston, Texas for a report on the latest methods of treating burns This program is produced in cooperation with the American Medical Association

MAGAZINES

McCall's, May, 1957

McCall's Manual of First Aid

An eight-page insert in the magazine, the manual prepared by the Bureau of Medical Information, New York Academy of Medicine, 'covers the medical emergencies that arise most often in the average family

The Doctor Talks About Breast Feeding

A specialist on McCall's Board of Medical Advisers says, 'Today you can feed your child by the method you like best It is doing mothers a great disservice to make them feel that breast-feeding is the only way or the best way or the natural way"

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Feller, H. L., and Kassel, L. E Antibiotic Medicine & Clin Therapy,

Thos. Leeming & Co. Inc. 155 East 44th Street, New York 17

I Was Afraid to Be Normal, by Frances Warfield
The story of the new and terrible struggle that begins for the author, partially deaf since childhood, when at last she learns that she can be completely cured

Queen Juliana's Story by Geoffrey Bocca
This article tells of how faith healer Greet Hofmans influenced the Dutch royal household when she was retained to help Queen Juliana's daughter regain her sight Miss Hofmans eventually was dismissed at the suggestion of the Queen's advisers

Fortune, May, 1957
The Tranquilizer Question, by Francis Bello
In just three years tranquilizers have broken all growth records of the drug industry But no one is yet certain what happens to people when they take these pills—or if they should'

Reader's Digest, May, 1957
New Weapons Against Heart Disease, by Francis and Katherine Drake
The article states that improved methods of detection and treatment, plus a sensible diet are reducing coronary attacks

Still Voice by Eloise O'Mara
A wife's poignant story of how her husband learned to speak again after cancer had taken his voice

Redbook, May, 1957
How to Stay Healthy While Traveling, by Wallace Croatman
The author tells how to increase your family's chances of staying healthy while away this summer—or, at the very least, to prepare for emergencies

Good Housekeeping, May, 1957
Hypnosis, by Judith Tarcher and Philippe Halsman
According to the article, hypnosis is now called mental anesthesia and is being used as an aid in every form of surgery

Saturday Evening Post, May 4, 1957
That Creeping Menace Called Smog by Leigh White
Pollution of the air hovers over most of our cities, costs us billions in health and property damage and sometimes kills

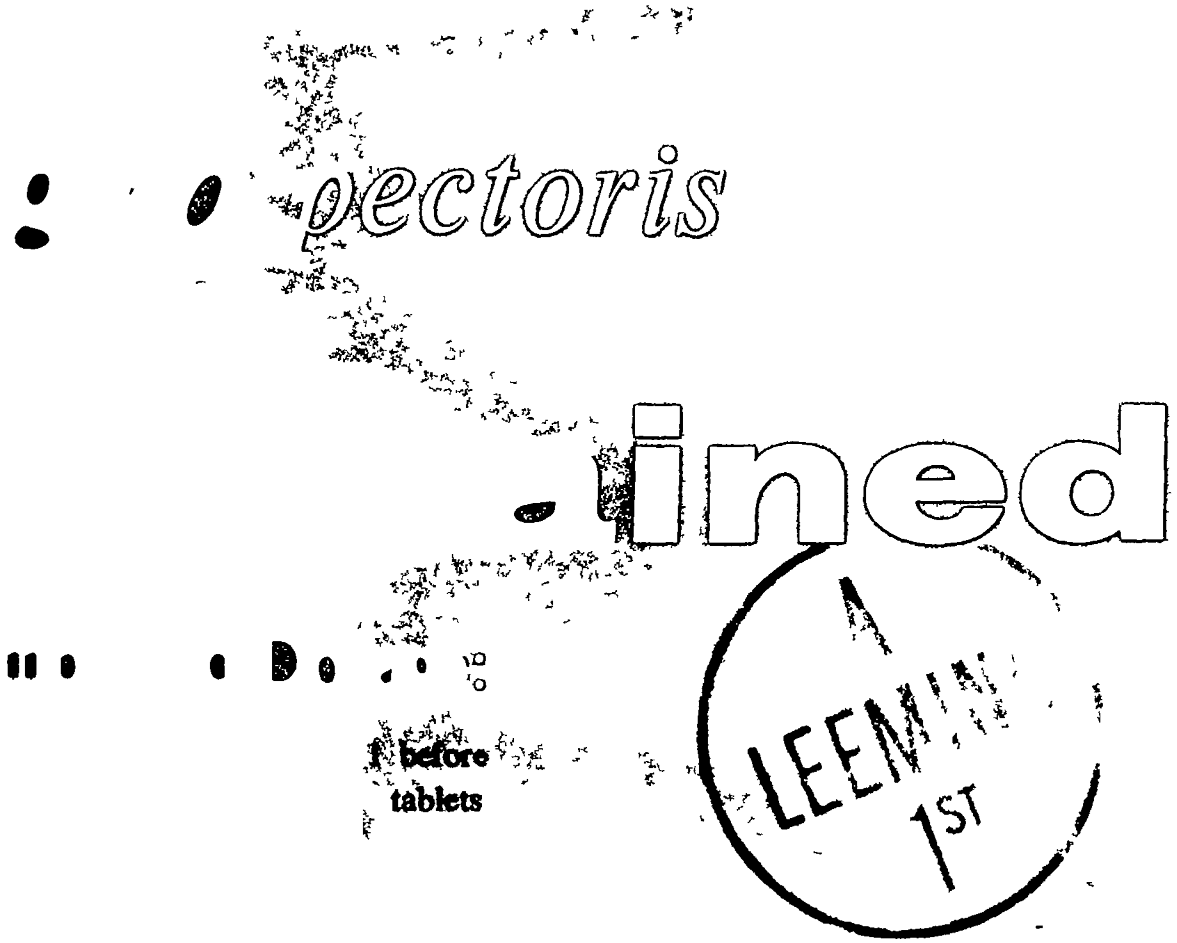
Saturday Evening Post, May 11, 1957
The Burma Surgeon Carries On
This story is a profile on the famed Burma surgeon Dr Gordon Seagrave

Seventeen, May, 1957
Adolescence an interview with Dr J Roswell Gallagher
The chief of the adolescent unit of the Boston Children's Hospital explains the changes that an adolescent girl's body undergoes and recommends several ways to alleviate two of the most usual problems—cramps and acne

Better Homes and Gardens, May, 1957
Bomb Dust Radiation! by James Poling
The work of the Atomic Energy Commission's health and safety laboratory—the trouble-shooting branch of the AEC's division of biology and medicine—is the subject of this article

Consumer's Report, May, 1957
When Your Child Goes to the Hospital
Advice on what parents can do to help a child overcome fear and adjust to the hospital environment is given in this article

Varicose Veins
The report says the exact cause of varicose veins is unknown and the several varieties require different handling It explains methods of treatment and suggests certain measures of value in delaying the enlargement of the veins and in preventing major complications of varicosity



From other Pages

The Age of Tablet-Rioty

What happened to the pearl or pill
To cure the many who are ill?
Our fathers were satisfied with capsules
We have to take Spansules
Other millions prefer colored Kapseals
Except those with a delicate tummy who have to take Enseals
You may get relief from a Capsulette, Caplet, Emplet, or Tymcap
Or, maybe you prefer a Timesule, Trisule, Tempule, or Duracap
For those who like neither tablet nor capsule
There is available now the Tabule
When you need action prolonged and extended
You can use a Duratab, Spacetab, Extentab, or Repeatab with an effectiveness previously never comprehended
They will give you delayed, repeated, or sustained surcease
Whereas others promise you sequential release
For a tablet to hold but a single ingredient
Would not be expedient
We need a tablet that is complex
So you have the Prestab, the Encore, the Strand, Rotocote, and Duplex
And Heaven forbid
We should chew it
We would have to bite through the outer core, the inner core, and the center
And who would dare to venture?
For a tablet to be coated enteric
It now has to be engestic coated or Duenteric
But alas, if you are still under par
Maybe an Ovoid, a Suprette, Homagenette, or Unicette will bring you back to the bar
If your kiddies need medication and you don't want them to spill it
You can tempt them with an Infatab, Tasticap, Softab, Dulcet, Candisphere, Medilet, or Pillette
And as for the lozenge, used by the old lady with the lorgnette,
She can now soothe her throat with either a Sucret or a Pharynget
Don't let's call this the age of anxiety
But rather name it the age of tablet-rioty,
And if neither an ataraxic, calmative, tranquilizer, mental clarifier, or psychosedative brings you back to sanity
You can always disappear
With a Sphere.—Paul de Haen

The Pathology of Boredom

Aviators sometimes suffer hallucinations during long monotonous flights. The phenomenon is illuminated by a general examination of the effect of prolonged exposure to a monotonous environment. The aim of the project was to obtain basic information on how human beings would react in situations where nothing at all was happening.

The subjects were male college students paid $20 a day to participate. They lay on a comfortable bed in a lighted cubicle 24 hours a day for as long as they cared to stay, with time out only for meals (which they usually ate sitting on the edge of the bed) and going to the toilet. They wore translucent plastic visors which transmitted diffuse light but prevented pattern vision. Cotton gloves and cardboard cuffs extending beyond the fingertips restricted perception by touch. Their auditory perception was limited by a U-shaped foam rubber pillow on which their heads lay and by a continuous hum of air conditioning equipment which masked small sounds.

We began with a preliminary run in which we merely observed the subjects' behavior and interviewed them afterward. Most of these subjects had planned to think about their work, some intended to review their studies, some to plan term papers, and one thought he would organize a lecture he had to deliver. Nearly all of them reported that the most striking thing about the experience was that they were unable to think clearly about anything for any length of time and that their thought processes seemed to be affected in other ways. We therefore decided that the first thing to do was to test effects on mental performance. We used three main methods of investigating this. One was a battery of oral tests involving simple arithmetic, anagrams, word association and so on. This battery was given before the experiment, at 12, 24 and 48 hours during the isolation and finally three days afterward. Another battery of tests, given two days before and immediately after the isolation period, included copying a design with blocks, speed of copying a prose paragraph, substituting symbols for numbers, picking out what was odd in each of a series of pictures (for instance, one picture showed a man in a canoe using a broom instead of a paddle) and recognizing patterns embedded in a complex background. The third test used the recording of a talk arguing for the reality of ghosts, poltergeists and other supernatural phenomena. It was played to each subject during his isolation and after he had emerged.

On almost every test the subjects' performance was impaired by their isolation in the monotonous environment (and was poorer than that of a control group of students). The isolation experience also tended to make the subjects susceptible to the argument for the existence of supernatural phenomena. Some of them reported that for several days after the experiment they were afraid that they were going to see ghosts. . . . The content of their thought gradually changed. At first they tended to think about their studies, about the experiment, about their personal problems. After a while they began to reminisce about past incidents. . . . To pass the time some tried to remember in detail a motion picture they had seen; others thought of travelling from one familiar place to another and would try to imagine all the events of the journey; some counted numbers steadily into thousands. . . . Eventually some subjects reached a state in which it took too much effort to concentrate, and they became "content to let the mind drift." . . . The subjects became markedly irritable as time went on and often expressed their irritation. Yet they also had spells when they were easily amused.

They also said that they seemed to lose their "sense of perspective" while in the cubicle, and some subjects mentioned that at times they felt that the experimenters were against them, and were trying to make things exceptionally tough for them. The subjects reported something else to which we at first paid no particular attention but which was to emerge as the most striking result of the experiments. Many of them, after long isolation, began to see images. One man repeatedly saw a vision of a rock shaded by a tree; another kept on seeing pictures of babies and could not get rid of them. Several subjects seemed to be "having dreams" while they were awake. Not until one of the experimenters himself went through the isolation experience for a long period did we realize the power and strangeness of the phenomenon. His report, and a review of the literature on other experiments in monotony, made clear that the experimental situation induced hallucinations.—W. Heron, The Pathology of Boredom, *Scientific American* January, 1957

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THE CHANGING DISTRIBUTION OF HELMINTHIC DISEASES IN THE UNITED STATES

Carroll L Birch, M D
and
Basil P Anast, M D , Chicago

• *Trichinosis exemplifies the importance of helminthic diseases in this country the number of cases of trichinosis in the United States exceeds that in any other country in the world Tropical diseases are brought to the United States by people returning or immigrating from other countries, an example is American trypanosomiasis, the first case of which in the United States was reported in Texas in 1955 Schistosoma mansoni and Wuchereria bancrofti are being brought to the mainland of the United States from the West Indies, especially from Puerto Rico Many cases of schistosomiasis have been reported since 1950, especially in northern cities such as New York and Chicago Parasites endemic in one area within the United States are carried occasionally into other areas, as is illustrated by an outbreak of infestation with Strongyloides in a school in Illinois after the arrival of children from New Mexico The authors give many other examples, and the fact that these problems are not peculiar to the United States is illustrated by recent migrations of Jamaicans to England, Indonesians to Holland, and Algerians to France Two million American tourists have visited foreign countries since World War II Increased attention to the principles of sanitation and hygiene is urgently needed in order to reduce the disability now caused by parasites and to prevent parasites from establishing themselves in new areas*

Parasitism as a way of life is present throughout the vegetable and animal kingdoms Parasites have few racial preferences or prejudices, they seem to be attracted to man by more subtle attributes There is evidence that parasites have plagued the human race since the dawn of history for the much toward social betterment is parasite ridden

The symptoms produced by parasites vary from none at all to fulminating, resulting in death This variability depends on many factors usually summed up by the phrase "virulence of the organism and resistance of the individual" which conceals much lack of knowledge

A truly successful parasite develops a state of equilibrium with its host and does it no harm for the life of the host is essential for the life of the parasite Perfect parasitism produces no pathology When the parasites become too numerous this balance is disturbed and disease is the result Also in a community where the resistance of the individuals is low or the diet poor, parasites become a great physical and economic burden on the people The human suffering caused by Plasmodium malariae Entamoeba histolytica and Ancylostoma duodenale (hookworm) and other round worms and flukes, especially schistosomes, can not be estimated

There is reason to suspect that some parasitic and tropical diseases are on the increase Toxoplasmosis has spread in recent years Isospora belli made its initial appearance in Florida in 1955 Capillaria hepatica in a living person in Maryland was diagnosed for the first time in 1954, and McInown reported a case in New Orleans

American trypanosomiasis (Chagas' disease) is one of the more important public health problems in Guatemala and other Central and South American countries During 1955 the first patient with this disease in the United States was reported in Texas[1]

Dreaded yellow fever occurred in most of the Central American countries between 1949 and 1954 In 1948 a wave of jungle yellow fever moved along the Atlantic rain forest from Panama It reached Costa Rica in 1951 Then it reentered West Panama and moved into Nicaragua Romero and Trejos[2] report the mortality rate in children under 12 years of age with yellow fever to be 6 2%, while in adults it is 27 4%

From the University of Illinois College of Medicine

Read before the Section on Pathology and Physiology at the 105th Annual Meeting of the American Medical Association Chicago, June 13, 1956

The number of cases of trichinosis in the United States exceeds that in any other country in the world Relapsing fever exists in Texas One hundred cases were confirmed by finding the spirochetes in the blood The vector Ornithodoros turicata, was studied in 44 counties Specimens from 36 counties harbored spirochetes[3] Radke and others[4] studied a single stool specimen from each of 4,438 food handlers About 10% harbored pathogenic agents

Baar[5] has reported on a new disease, which he calls "interstitial plasmacellular pneumonia' It is caused by a protozoan, Pneumocystis carinii, and has appeared in Europe It produces honeycombed areas in the lung Thus far, no cases have been reported in the United States Ritchie,[6] in his parasitological study of the Far East, examined 2,211 persons, 79% showed helminths and 48% protozoa Corrêa's[7] examination of 55,764 children between 7 and 14 years of age in Brazil revealed that 70 44% harbored helminths In Santiago, the examination of 3,902 pupils indicated that 25 73% carried Entamoeba histolytica, 15 73% Giardia lamblia, 27 37% Ascaris lumbricoides, 15 76% Hymenolepis nana, and 36 48% Enterobius vermicularis

Dr Norman B McCullough, a clinical chief at Bethesda, Md , said, 'What is left in the infectious grab bag is still formidable Most virus diseases are mysterious and unsolved Antibiotics, which knock out bacteria, are powerless against them Hepatitis, the common cold, fungus and parasitic diseases are still uncommonly difficult problems "

Vigorous attacks should be made against these remaining enemies which continue in their cycles of destruction The United States and other scientifically advanced and sanitation-conscious countries have the necessary laboratory facilities, but medical men seldom think of examining for parasites In the underdeveloped countries they think of parasites but often have few laboratory facilities Diagnosis of most parasitic diseases can be made by simple laboratory procedures, performed by experienced examiners

The names of even the commonest parasites are unfamiliar to many practitioners A clear picture of the present parasitological problems may be of interest and the subject found no less worthy of attention than the other branches of medicine At present, parasitism presents a serious social situation in the United States and the rest of the world The concept and teaching of parasitology is constantly changing During wars it is emphasized, during interwar periods it is forgotten When World War II ended, so did the fight against parasites

Parasitology is not concerned so much with climate as with underdeveloped and overpopulated areas any place in the world where sanitation measures have not been applied Such regions are inhabited by about three-fourths of the peoples of the earth By sheer weight of numbers the subject becomes important The presence or absence of parasites is determined more by the sanitary facilities of a country and the hygiene of its citizens than by the climate Personal cleanliness, that is, body bathing, has little influence on these conditions Dr Asa C Chandler[8] is of the opinion that exotic and parasitic diseases are the result of substandard ways of life in bad environmental conditions He says, "Even if we ignore the moral responsibility can we afford to allow it to pass unnoticed from an economic standpoint?'

Reasons for Increase in Parasites in Northern United States

Parasites have become more numerous in the northern cities of the United States for several reasons

Migration from Endemic Areas —The entrance of large numbers of citizens into northern cities, begun a number of years ago, is now in progress and will probably continue for years to come Recently many persons, chiefly Negro, but also white, have migrated from the southern states They have exchanged the cabin in the South for the tenement in the North Roi Ottley, in one of a series of articles in the Chicago *Tribune*, stated that 2,500 Negroes arrive in Chicago each month They bring with them their cultural patterns, their eating habits and, as the South has more parasites than the North, an unknown number of parasites As stated before, parasites have no race preference, but there is some evidence that Negroes have greater immunity than members of other races to certain strains of vivax malaria and perhaps to some other parasites Our southern states have always had a higher index of parasites than the northern states Young[9] reports that an examination of a single specimen of stool from each of 2,908 school children showed parasites in 33 2%

Citizens from Puerto Rico have been reaching the mainland of the United States in large numbers According to the United States census of populations, there were 1,513 Puerto Ricans in the United States in 1910, in 1930 the number was 52,744, and in 1950 it had increased to 226,110 Many others have arrived during the past few years There were 187,500 Puerto Ricans in New York City in 1950 and 700,000 in 1956 In 1950, Chicago housed 1,700 According to a recent survey made by Saul D Alinsky, there are 22,000 persons from Puerto Rico in Chicago According to John Justin Smith's report in the Chicago *Daily News*, May 9, 1956, "Thousands more will probably come in the next few years " They are arriving at the rate of about 400 per month

Citizens from Puerto Rico and immigrants from the West Indies and South America harbor many parasites It must be remembered that the southern Negro is a full-fledged citizen and has been for many generations Puerto Ricans, too, are full citizens The United States has controlled the island of Puerto Rico since 1898 Progress in sanitation has been made Yellow fever has been eliminated and malaria is almost a disease of the past, but the protozoa, round worms, and flukes still flourish These citizens from the South and from our island possessions usually settle in the poorer sections of the northern cities and in overcrowded areas For their sakes and that of the community they should be treated for parasites Freedom from parasites will lead to improved physical condition and to greater efficiency among students and workers

Travel and Work in Endemic Areas.—Visitors and workers frequently return from endemic areas with fevers and gastrointestinal upsets. These conditions often develop after the traveler has returned home, because the short time required for air travel is within the incubation period of most infectious diseases, including malaria, kala-azar, pappataci (sandfly) fever, dengue, yellow fever, rickettsial infection, and bacillary and amebic dysentery. These returnees include soldiers, government employees, Point Four personnel, foreign visitors, missionaries, and tourists. Since World War II, over 2 million Americans have traveled outside the United States. Recently at the West Side Medical Center three Chicagoans were shown to have malaria after returning from visits to Mexico.

Political unrest and economic aid to underdeveloped countries require United States citizens to remain in endemic areas. Need of raw materials from countries where tropical diseases are prevalent demands that United States personnel be located in these countries. Men of the armed forces often are stationed in countries where these infections thrive. Each of these factors contributes to the redistribution of helminths.

Intestinal Parasites Now Common in North America

Formerly the most common pathogenic intestinal parasites found in persons in northern cities were Entamoeba histolytica, Giardia lamblia and Enterobius vermicularis. Now Ascaris lumbricoides, Ancylostoma duodenale, and Trichuris trichiura (whipworm) from the southern states are added. To a lesser extent, Schistosoma mansoni and Wuchereria bancrofti from endemic areas chiefly in the Western Hemisphere are added, as well as other parasites from Mexico, Japan, the Philippines, and countries all over the world.

Since about 1950 parasites have become more abundant and some hitherto unfamiliar parasites have appeared, for reasons enumerated above. A letter from Dr. Arthur E. Rikli of the regional office, Department of Health, Education and Welfare, states that 1,008 cases of schistosomiasis were recognized in members of the Army and 78 in the Navy between 1945 and 1954, chiefly in persons from Puerto Rico. In a survey of 16,000 Puerto Rican soldiers 14.6% showed S. mansoni infection. On the basis of autopsy findings, the incidence rose to 40%. Of 276 soldiers, 18.8% were passing eggs, while 43.5% showed positive skin tests.[10] It is generally assumed that the over-all population of Puerto Rico shows an infection rate of about 10%. Schistosomiasis is not reportable in Illinois, perhaps not in the United States, for it has never been endemic here, but it was placed on the exclusion list by the surgeon general of the U. S. Public Health Service in August, 1917. At the Research and Educational Hospitals in Chicago, the first cases of schistosomiasis was seen in 1950. In 1952, 'Vital Statistics of the United States,' volume 2,[11] showed three deaths due to schistosomiasis in white males.

In 1953 Shookhoff and others[12] said, "Among the parasitic diseases, bleeding from the rectum is most often due to schistosoma infections. S. mansoni is being seen with increasing frequency in the continental United States because of the presence of individuals from the endemic areas of the West Indies and South America." Meleny regards schistosomiasis as the most important disease of man, with the exception of malaria. Berry[13] states that schistosomiasis is the world's third most widespread disease, as it affects about 200 million people. At the Chicago Pathological Society on Feb. 13, 1956, Eisenstaedt, Bicknell, and Glasser[14] reported a case of schistosomiasis which was diagnosed post mortem. The patient entered the hospital in coma and died in a short time.

A comparison of the frequency with which the kinds of intestinal helminths were seen at Research and Educational Hospitals in Chicago during 1940 and 1942, as reported by the former parasitologist Dr. Marion Hood, and during 1950 and 1955 shows significant differences (see table). The results are based on stool examinations only.

The figures for the two periods are similar for the first five helminths listed, while Ancylostoma duodenale, Trichuris trichiura, and S. mansoni have been introduced into this region in increasing numbers. These three, plus Enterobius vermicularis, constitute the heaviest "worm burden" of the area. These parasites are undoubtedly present in much larger numbers than have been found.

Frequency with Which Intestinal Helminths Were Seen at Illinois Research and Educational Hospitals 1940 and 1942, 1950 and 1955

Type of Helminth	No. of Cases in	
	1940 and 1942	1950 and 1955
Taenia saginata	6	5
Hymenolepis nana	1	1
Strongyloides stercoralis	3	1
Enterobius vermicularis (pinworm)	40	39
Ascaris lumbricoides	4	0
Ancylostoma duodenale (hookworm)	1	23
Trichuris trichiura (whipworm)	1	43
Schistosoma mansoni	0	15

Survey of Incidence of Schistosomiasis.—In order to determine the number of cases of schistosomiasis which occurred in the Chicago area during 1955, a survey was made of 129 hospitals in Chicago and vicinity. Replies were received from 108 of these. Cook County Hospital reported 20 such cases. State institutions have diagnosed from 15 to 20 cases each year since 1950. Ten additional cases were diagnosed in other hospitals. Research and Educational Hospitals had 11 cases. This gives an estimated total of about 58 for the year. Several hospitals replied, "none that were recognized," and others replied, "none during 1955."

There are at least 22,000 persons in Chicago who have come from endemic areas of schistosomiasis. About 10% of these persons are thought to be infected. This means that about 2,200 persons in Chicago are harboring schistosomes. The calculated figure for New York City is approximately 70,000. Many of these persons have few or no symptoms, or they have had the symptoms so long that they consider themselves normal.

Only 17 of 89 consecutive patients from endemic areas of S. mansoni were found to have stools free of parasites. Twenty-one showed evidence of S. mansoni ova, 28 Ancylostoma duodenale, 54 Trichuris trichiura, 17 Giardia lamblia, 2 Strongyloides stercoralis, 1 Enterobius vermicularis, 3 Entamoeba histolytica, 3 Endolimax nana, 1 Dientamoeba fragilis, 1 Chilomastix mesnili, 5 Entamoeba coli, 1 Balantidium coli, and 1 Hymenolepis nana Of the 72 patients who showed evidence of parasites, 25 showed one type each, 31 showed two, 13 showed three, and 3 showed four

It must be remembered the 89 patients, among whom were several members of some families, presented gastrointestinal symptoms Also, only stools were examined If other methods of diagnosis, such as rectal biopsy and complement fixation, had been employed, the number of cases of schistosomiasis might have been higher Enterobius vermicularis is rarely diagnosed by stool examination The number of Entamoeba histolytica is less than expected This may be accounted for by the fact that most of the specimens were brought into the laboratory by clinic patients and were therefore too old for dependable protozal findings

A total of 13 different types of parasites were found in the 89 patients Two of these parasites, Endolimax nana and Chilomastix mesnili, are considered nonpathogenic The most common parasite, Trichuris trichiura, was found in 54 of the 89 patients Ancylosttoma duodenale was found in 28 patients and S mansoni in 21 Balantidium coli was found but once, at Research and Educational Hospitals, in May, 1956

Mode of Spread of Parasites

The mode of spread of parasites determines their effect upon the community The long-established intestinal protozoal parasites, Entamoeba histolytica and Giardia lamblia, multiply abundantly within the body and are easily passed to others through contaminated water and food, food handlers, and flies, and through personal contact

Enterobius vermicularis, the ubiquitous helminth, produces myriads of embryonated eggs The outstanding symptom is perianal pruritus, so there is anus to mouth infection, with abundant multiplication It spreads liberally by direct and indirect contact, especially in institutions for children This worm constitutes one of life's little irritations Most citizens live in comfort, while several million, chiefly children, carry on with indominable courage amid the misery of anal itching and intermittent diarrhea because they are harboring Enterobius vermicularis

Will the newly introduced parasites—Ancylostoma duodenale, Trichuris trichiura, and S mansoni—become endemic in the recently invaded areas? Most of the adult Ancylostoma will die within two years, but a few will survive for six years or even longer Because this parasite is not passed directly from person to person, but has a portion of its development outside the body, it is not likely to spread to contacts in areas where flush toilets are abundant It will flourish only where there is promiscuous defecation and people walk barefooted or there is other contact with skin, for the filariform larva gains entrance to the body through skin and mucous membranes If rules of sanitation and hygiene are followed, there should be little or no spread of Ancylostoma infestation

The life expectancy of the Trichuris is long, 20 to 30 years The worms often outlive the hosts Daily, large numbers of immature eggs, about 4,000 from each adult female, are discharged in the feces These ova mature and the larvae become infective in about 20 days The larvae enter the body by way of the mouth Light infections often are symptomless or produce vague abdominal pains, nausea, vomiting, and mild intermittent diarrhea In heavy infections the symptoms resemble those of Ancylostoma infestation Because these worms live for many years and the mode of entry is through the mouth, they are more apt to spread than Ancylostoma, especially among children in institutions Trichuris and their eggs will be present in newly invaded areas for years to come unless the patients are treated, and treatment is difficult and unsatisfactory T Pizzi[15] has shown that Trichuris trichiura is of historic importance He states that its eggs were found in abundance in the feces of the little Inca princess whose body was found well preserved by freezing, near Santiago, 17,658-ft elevation This find proves that Trichuris infestation was common in the Inca population before the Spanish conquest

Three important schistosomes infect man S mansoni, S japonicum, and S haematobium Morphologically these schistosomes look much alike and have similar life cycles The symptoms they produce vary somewhat, for they have different sites of predilection in the body Each of the schistosomes has characteristic ova The schistosomes are the most important trematodes that infest man In this group of flukes the individuals exist as males and females They are more worm-like and less leaf-like than the hermaphroditic flukes The size is variable, with lengths ranging from 6 to 25 mm The females are longer and slimmer than the males Schistosoma ova are not operculated "Schistosoma" means "slit body" and refers to the deep ventral groove forming the gynecophoral canal in the body of the male During copulation and oviposition the female lies within the gynecophoral fold of the male, and both worms reside within the blood vessels of man Both sexes are provided with oral suckers and acetabulums, but those of the males are larger and serve to anchor both worms during most of their lives

Schistosoma mansoni[16] has a complicated life cycle The adults live within the blood vessels When the female is ready to oviposit, the pair moves against the portal blood flow to the smaller vessels After an ovum is deposited, the female withdraws a little and discharges another, in bead-like formation When that vessel is filled with eggs, the worms back into another, and thus lay eggs in fan-like formation Many ova work their way through the capillary wall and ultimately reach the intestinal lumen and are discharged in the feces

To survive, the ova must reach fresh water The eggs are embryonated when passed, so they hatch soon The liberated miracidia swim about and penetrate snails of proper species Within the snail host they multiply through the larval stages In four to eight weeks forked-tail cercariae swarm from the snail during the sunlight hours The cercariae swim actively, tail first, until they reach the surface of the water Some adhere to the surface film, others drop to the bottom only to swim again to the top This vertical tour is repeated many times until they meet a host or perish Cercariae do not feed and can live only 12 to 16 hours in a free state

Cercarine have the power to penetrate human skin and mucous membranes Persons drinking, bathing, wading, or washing clothes in contaminated water are apt to be infected Barefoot farmers standing in irrigation ditches and cultivating rice fields are likely targets As the person emerges from the water, the water on the skin dries and the cercariae penetrate head first, leaving their tails outside Often there is some irritation of the skin caused by the entrance of cercariae Watercress grown in water containing infected snails is another source of infection

Within 24 hours after piercing the skin, some of the larvae have worked their way into the capillaries They are carried in the blood stream through the right side of the heart to the lung The disproportion existing between the diameter of the parasites and that of the lung capillaries may cause the parasite to remain in the lung for several days At times this causes symptoms similar to those of pneumonia Because the capillaries dilate and the worms elongate, they finally get through to the left side of the heart and into the systemic circulation It is believed most worms are destroyed Only the worms which reach the portal circulation survive Here, bathed in portal blood, they mature In about three to four weeks they leave the liver and go to mesentery of the large intestine En route the female is fertilized, so in another few weeks oviposition begins, thus completing the cycle

Schistosomiasis

Schistosomiasis caused by S mansoni, also called Bilharzia, is found in many parts of Africa, the West Indies, South America, and other scattered areas, chiefly in the tropics The symptoms depend upon the stage of the disease In the early stage there is leukocytosis with eosinophilia Later, leukopenia develops An increase in plasma globulin is characteristic At first the liver enlarges due to inflammation, for in the intrahepatic portal blood the adult worms produce metabolites which provoke an acute hepatitis and systemic intoxication Later there is extensive periportal fibrosis with compensatory congestive enlargement of the spleen and dilation of collateral veins Some ova are swept back into the liver Eggs in their course to the intestinal lumen cause traumatic damage and hemorrhage Later these areas may undergo malignant change Pseudo-tubercles form about trapped eggs Often ova are carried to the skin, where they ulcerate, and to the heart, where they cause myocarditis In fact, ova may be carried to any organ of the body, even to the central nervous system

A heavy infection of S mansoni produces fulminating bloody diarrhea followed later by cirrhosis of the liver, ascites, liver failure, and death A mild infection may produce few symptoms, but the paired worms go on continuously destroying blood vessels and laying eggs which are carried to liver, spleen, and elsewhere in the body As these worms live for 20 or 30 years, even a few of them may produce massive destruction

In the late stages of schistosomiasis, the abdomen is distended, while the arms and legs are emaciated Multiple fistulous tracts may develop about the anus, extending from the colon Diagnosis is confirmed by finding the characteristic ova in the stool Ova measure about 150 by 60 μ They are easy to identify because of the large, sharp lateral spine Other diagnostic procedures include rectal biopsy, complement fixation, precipitin test, and skin test Rarely, eggs or larvae may be found in the sputum (Infected persons should be treated not only for schistosomiasis but for all the parasites they harbor)

Complications include intestinal stenosis, hemorrhage, cor pulmonale, allergic manifestations, appendicitis, and malignant degeneration Death may be caused by overwhelming intoxication in the acute stage or cirrhosis of the liver, exhaustion, or intercurrent infection in the late stages

Possibilities of New Parasites Becoming Endemic

Whether schistosomiasis could become endemic in the United States is an important question This fluke has a complicated life cycle Feces containing viable eggs must reach fresh water The ova must hatch and the miracidia enter specific snails Development within the snail requires about one month Then the cercariae emerge in sunlight They must enter human skin within 16 hours to survive Studies by the National Institutes of Health made during World War II [17] indicate that there is a local species of snail capable of serving as intermediate host In order to establish an endemic focus, all of these conditions must prevail In spite of the presence of an appropriate snail, it seems unlikely that all of the factors necessary could conspire to establish a focus here

Of the three newly introduced parasitic worms—Ancylostoma duodenale, Trichuris trichiura, and S mansoni—the first and last are unlikely to become endemic because they have complicated life cycles and gain entrance to the body through the skin The cold of winter prohibits outdoor swimming and going barefooted, so any possible infection would be limited to the summer Both of these worms depend for their spread upon promiscuous defecation and unsanitary and unhygienic environment The other, Trichuris trichiura, because of its long life, simple life cycle, and mode of entrance through the mouth, has a possibility of spreading

At times, in spite of flush toilets and sanitation, there are small outbreaks of cases of infestation with unusual parasites, such as the one described by Dr L M Schuman of the Illinois Department of Public Health He made a preliminary report on a heavy infestation of Strongyloides stercoralis, primarily among inmates of a private mental institution in west central Illinois Toward the end of August a child developed a condition that was diagnosed as an upper respiratory infection of viral origin His condition failed to improve satisfactorily, and after several weeks the parents took him home There, the child was hospitalized, and, after the third week of hospital care, the larval form of Strongyloides stercoralis was observed in his stool An immediate survey of the three children's cottages with common playground facilities was made Among 82 child inmates, infestation with Strongyloides was noted in 38% on examination of initial stools It was stated that "this parasite apparently had never before been observed in the State of Illinois " Consequently, the roster of survey children was reviewed, and two children from New Mexico who had been admitted two months prior to this occurrence were found to be heavily infested with this parasite The investigation of this infestation was, at the time of this report, still in progress

Filariasis, Wuchereria bancrofti infestation, is not diagnosed by stool examination, so it is not within the scope of this paper However, it is found in many of the same areas as schistosomiasis The diagnosis is confirmed by finding the microfilaria in the peripheral blood at night It is transmitted from person to person by the common house mosquito, Culex fatigans As this variety is the usual pest mosquito, it would seem that filariasis would be more likely to spread here than schistosomiasis

The mixing of peoples and parasites is not a local problem Many Jamaicans are entering England, Indonesians are pouring into Holland, Algerians are flocking to France Perhaps it is another manifestation of 'one world

Comment

Worms do not have the universal appeal and journalistic value of great viral and bacterial epidemics Humans consider the subject unsympathetically and recoil at the thought of harboring worms But the helminths have resisted destruction and have persisted and multiplied since the beginning of time This is a tribute to their biological efficiency

Parasitism is allowed to persist because of lack of knowledge, lack of interest, poor diagnosis, and failure to realize the extent of misery caused by parasites The application of our present knowledge could eradicate most parasites from our country, just as malaria and yellow fever were eliminated, if interest were taken, known facts applied, treatment given, and preventive measures adopted

Summary and Conclusions

There has been an increased incidence of parasitic and tropical diseases in the United States A redistribution of helminths is partially responsible for the increase in parasitic diseases This redistribution is a result of several factors Masses of people migrating from the southern states to the northern states bring with them Ancylostoma duodenale (hookworm), Trichuris trichiura (whipworm), and Ascaris Thousands of people are arriving from the West Indies and other endemic areas, bringing with them Schistosoma mansoni, filaria, and other parasites Two million American tourists have visited foreign countries since World War II If they remain temporarily in endemic regions, they may bring the infections back with them Economic aid to underdeveloped countries requires that United States personnel travel to these countries Need of raw materials demands commercial representatives in endemic areas, and members of the armed forces often are stationed in such areas

Ameba, Enterobius vermicularis (pinworm), an Giardia have been present in northern cities for years Ancylostoma duodenale, Trichuris trichiura, and S mansoni began to appear about 1950 A survey o Chicago hospitals revealed 58 cases of schistosomiasi during 1955 The probable number of infected persons is 2,200, calculated on the percentage of thos harboring the parasite in the endemic areas fron which they came In New York City the calculate number of cases is 70,000 A study of the stools of 8 persons from endemic regions showed only 17 person without parasites, while 23% showed ova of S mansoni This group harbored 13 different types o parasites

The spread of parasites depends more on sanitatio and hygiene than on climate If the rules of sanitatio and hygiene are followed, these parasites are not likel to become endemic

1853 W Polk St (12) (Dr Birch)

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DIAGNOSIS AND MANAGEMENT OF THYROIDITIS

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• *In 1,309 operations on the thyroid gland, various forms of thyroiditis were encountered in 117 patients, excluding 83 other patients in whom a focal thyroiditis was associated with diffuse toxic and adenomatous goiter and carcinoma. Among the 117 patients there were 28 with acute and 89 with chronic thyroiditis. The acute thyroiditis led to suppuration in 6 patients; they required surgical incision and drainage, and all recovered with the aid of antibiotics, chemotherapy, and supportive measures. There were 22 patients in whom the acute thyroiditis did not go on to suppuration; antibiotic and x-ray therapy sufficed in 8 of these, but surgery was necessary in 14. The 89 patients with chronic thyroiditis were classified, upon examination of tissues removed at operation, as having Hashimoto's disease in 67, giant cell thyroiditis (granulomatous thyroiditis) in 16, and Riedel's struma in 6 cases. Surgical treatment of these forms of chronic thyroiditis is necessary in order to restore a normal appearance to the neck, to relieve pressure especially on the trachea, and to obtain adequate tissue specimens for diagnosis. Aspiration biopsies have not always yielded adequate specimens, and radiation therapy given in quantities sufficient to reduce the size of the thyroid also reduces its function. In this series of cases there were neither operative deaths nor serious postoperative complications.*

Recognition of the various forms of thyroiditis is essential to the clinician, surgeon, and pathologist in the management of diseases of the thyroid gland. The original reports of Riedel, a German surgeon,[1] Hashimoto, a Japanese surgeon,[2] and DeQuervain, a Swiss surgeon, and Giordanengo[3] have contributed greatly to our knowledge of thyroiditis.

The purpose of this report is to evaluate the histories, clinical and operative findings, pathological patterns, follow-up reports of, and therapy administered to a group of patients with thyroiditis in order to develop conclusions and correlate clinical findings that will be of value in the management of patients with this disease.

In 1,309 consecutive operations on the thyroid gland performed by me between the years 1933 and 1955, acute, subacute, and chronic thyroiditis were encountered in 117 patients. Eighty-three other patients were found to have focal lymphoid thyroiditis associated with diffuse toxic and adenomatous goiter and carcinoma of the thyroid gland. This latter group of patients, along with six others who had been treated elsewhere with radioactive iodine (I^{131}) for diffuse toxic goiter and who developed, after a period of from three to six years, large, firm goiters requiring bilateral subtotal thyroidectomy for relief of symptoms, are not included in this report.

The clinical and pathological classification of thyroiditis that I have utilized and found to be comprehensive consists of two large divisions. The first type is acute thyroiditis, consisting of acute suppurative thyroiditis and acute nonsuppurative thyroiditis. In this series there were 6 cases of the former and 22 of the latter. *The second type is chronic thyroiditis.* Under this classification there were in this series 16 cases of granulomatous or giant cell thyroiditis, 67 cases of Hashimoto's disease or struma lymphomatosa, and 6 cases of Riedel's struma.

Acute Thyroiditis

Acute suppurative or nonsuppurative thyroiditis, which follows an upper respiratory infection, is probably embolic in origin.[4] This form of thyroiditis is manifested by tenderness and pain in one or both lobes of the thyroid gland, hoarseness, local evidence of inflammation, painful swallowing, elevation of temperature, increased pulse and sedimentation rates, and spasm of the prethyroid and sternomastoid muscles. As the disease progresses the outline of the gland is masked by edema, which prohibits accurate delineation of the extent of the disease.

Acute Suppurative Thyroiditis.—The six patients, four males and two females, with acute suppurative thyroiditis developed an abscess, which required drainage. When first observed, they were all very ill, with severe pain, hoarseness, dysphagia, elevated temperature and pulse rate, and chills; the head was flexed toward the involved side, and in each instance the thyroiditis was a sequela of an upper respiratory infection. The disease remained localized to one side in all six patients, none of whom required thyroidectomy. Each made an uneventful recovery from the operative procedure necessary for drainage and was dismissed from the hospital within a period of six to seven days. None of these patients had any further difficulty relative to the thyroiditis. This form of the disease may be observed in any age group, the average age at operation of the patients in this series being 44 years.

Acute Nonsuppurative Thyroiditis.—Of the 22 patients, 8 males and 14 females, with acute nonsuppurative thyroiditis (fig. 1), 17 had unilateral involvement of the thyroid gland and 5 had bilateral involvement. Upper respiratory infection preceded the disease in all 17 cases. The patients in this group were not so ill as the six patients described previously who developed suppuration and required surgical incision and drainage. The thyroid gland of these patients was enlarged, tender, and painful, resulting in dysphagia in 21 patients and hoarseness in 17, while in 6 patients it was difficult to differentiate between thyroiditis and anaplastic carcinoma.[5] Sixteen patients had an elevated

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temperature and pulse rate, and six had chills Twelve of the patients underwent hemithyroidectomy and two bilateral subtotal thyroidectomy The ages of patients with this form of thyroiditis varied from 16 to 68 years, the average age at operation in this series being 40 years

Chronic Thyroiditis

The incidence of the three forms of chronic thyroiditis, that is, granulomatous or giant cell, Hashimoto s disease or struma lymphomatosa, and Riedel's struma, apparently is on the increase Chesky and co-workers[6a] reported on 169 cases encountered in 2,031 patients requiring thyroidectomy in a 10-year period, or an incidence of 8 3% I encountered the various forms of chronic thyroiditis in 89 patients in a total of 1,309 thyroidectomies, or 6 8% The disease is more frequently encountered along the Gulf Coast than in other sections of the United States

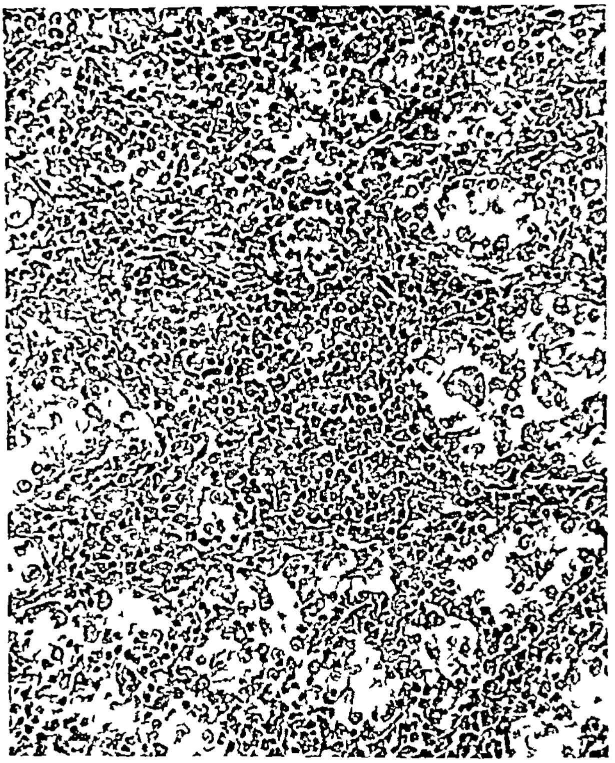

Fig 1 —Photomicrograph in acute nonsuppurative thyroiditis, demonstrating extensive degeneration of thyroid follicles with invasion of stroma with inflammatory cells This type of severe infection permanently destroys involved area of thyroid

There have been numerous controversial reports on these three forms of thyroiditis relative to etiology, classification, pathogenesis, and therapy[6] In the past few years, thyroidologists have made a continuous study of this form of thyroid pathology and constructive work has been accomplished[7] Chronic thyroiditis is manifested by the presence of lymphoid infiltration, epithelial alterations, and various degrees of fibrosis[8]

Granulomatous or Giant Cell Thyroiditis—There were 16 patients with granulomatous thyroiditis in this group Females were more frequently affected than males, the former numbering 10 and the latter 6 The youngest patient was 28 years of age and the oldest 62 (table 1) This disease is a distinct clinical entit of unknown etiology It has been suggested by som that it is produced by a viral, chemical, or bacteria agent, however, none has been recovered from resected specimens[9]

The clinical course of granulomatous thyroiditis which frequently follows an upper respiratory infection, is sudden onset with rather marked systemic reaction The patient feels nervous, weak, and tired, an the pulse rate may be elevated out of proportion t the temperature[10] The disease begins in one lobe an may gradually extend to involve the entire gland, does not originate in a gland that has been previousl involved by a goiter

Table 1 —*Various Time Elements in Regard to Patients wit Different Forms of Chronic Thyroiditis*

	Granulomatous or Giant Cell Thyroiditis	Hashimoto s Disease or Struma Lymphomatosa	Riedel Struma
Av duration of goiter yr	2	3 6	2
Av duration of symptoms yr	8 mo	3	2
Av age at operation yr	42	51	48
Age of youngest patient yr	28	20	40
Age of oldest patient yr	62	69	65

Tenderness and pain were present in one or bot lobes of the thyroid gland in all 16 patients, 9 complained of voice changes or hoarseness (table 2 In one patient, in whom the disease was unilatera there was paralysis of the vocal cord on the affecte side Twelve patients complained of painful swallowing, which resulted in weight loss, and 14 had pressu symptoms or were nervous The sedimentation ra was increased in 12 patients, the basal metabolic ra was below -10% in 12 patients, and the protei bound iodine determination was normal in the 1 patients on whom the test was performed (table 3

The thyroid gland was definitely enlarged in all patients, in nine the disease was unilateral and in seve it was bilateral The enlargement was not pronounce

Table 2 —*Symptoms in Patients with Different Forms of Chronic Thyroiditis*

	No of Patient with		
	Granulomatous or Giant Cell Thyroiditi	Hashimoto s Disease or Struma Lymphomatosa	Riedel Strum
Pain or tenderness in thyroid gland	16	56	6
Referred	16	22	6
Hoarseness or voice changes	9	8	5
Vocal cord pathology (unilateral)	1	3	2
Pressure symptoms	14	28	6
Difficulty in swallowing	12	10	6
Anxiety state with nervousness	12	44	2

the average resected lobe weighed only 25 to 30 Gr The gland was fixed, tender, and not infrequently difficult to differentiate from carcinoma when there wa unilateral involvement A correct preoperative diagnosis was made in eight cases At operation there we adhesions involving adjacent structures, i e, pr thyroid muscles, cervical fascia, and carotid sheat

Pathological examination revealed the glands to b smooth and firm to hard but not of the consistenc observed in Riedels struma There were no nodule and the color of the specimens varied from white t yellow to pink Microscopic examination revealed degeneration of the follicular epithelium with desquamation of the epithelial cells accompanied by a neutrophilic and eosinophilic infiltration (fig 2) Large peculiar multinucleated syncytial giant cells, which appeared to be foreign body giant cells, were also present, these, in all probability, are produced by macrophages phagocytizing colloid in the degenerated follicles The presence of these foreign body giant cells has given rise to the names pseudotuberculous, granulomatous, or giant cell thyroiditis In glands in which the disease had been present for long periods of time there was marked fibrous replacement of epithelial tissue

Hashimoto's Disease or Struma Lymphomatosa—After the description in 1912 of Hashimoto's disease,[7] very little attention was directed to it as a pathological entity until Graham[11] demonstrated in 1931 that Riedel's struma and struma lymphomatosa were distinct and distinguishable diseases He reported 24 cases of struma lymphomatosa encountered in 114 cases of chronic thyroiditis at the Cleveland Clinic Joll,[6d] in 1939, made an extensive study of the pathological and clinical manifestations of this disease and stated that in all probability Hashimoto had only described the earlier phase of this form of thyroiditis, he reported 81 cases

Hashimoto's disease, or struma lymphomatosa, is the most frequent form of chronic thyroiditis Davison and Letton,[12] as well as other observers,[13] have shown that the disease is definitely on the increase, they found that the incidence in their practice increased remarkably after the beginning of World War II It is thought that in all probability the vicissitudes and stress and strain of the war acted as precipitating factors in the production of the disease

In my series there were 67 patients, 4 males and 63 females, with Hashimoto's disease, the average age for the entire group was 51 years (table 1) The youngest patient observed by me was an 8-year-old female who had the right lobe of the thyroid gland removed for a discrete adenoma by Dr James Pridgen Jr at the Baptist Memorial Hospital in San Antonio, Texas Histological examination of tissue revealed early Hashimoto's disease The left lobe was not enlarged nor removed, however, two years later it became enlarged and firm, at which time it was removed Histological examination revealed typical early Hashimoto's disease, and an area of tissue approximately 3 mm in diameter showed papillary adenocarcinoma

TABLE 3—*Laboratory Studies on Patients with Different Forms of Chronic Thyroiditis*

	No of Patients with		
	Granulomatous or Giant Cell Thyroiditis	Hashimoto's Disease or Struma Lymphomatosa	Riedel's Struma
Elevated sedimentation rate	12	8	4
Preoperative B M R			
Above +10%	2	8	1
Below —10%	12	51	5
Preoperative serum cholesterol level			
Above 200 mg per 100 cc	12	56	5
Below 200 mg per 100 cc	2	4	1
Preoperative protein bound iodine level			
Above 6 µg per 100 cc	0	2	0
Below 6 µg per 100 cc	8	28	0
Postoperative B M R			
Above +10%	1	6	0
Below —10%	12	52	5

The average duration of the goiter in this series was 3½ years, the duration of symptoms was from 2 months to 20 years (table 1) Twenty-one patients had unilateral involvement and 46 bilateral involvement Ten patients had difficulty in swallowing, and 28 had pressure symptoms Forty-four complained of nervousness and an anxiety state In eight patients there were voice changes and hoarseness, three of these had unilateral vocal cord pathology (table 2) A correct preoperative diagnosis was made in 24 of the 67 cases At operation, there was involvement of adjacent structures in 16 patients

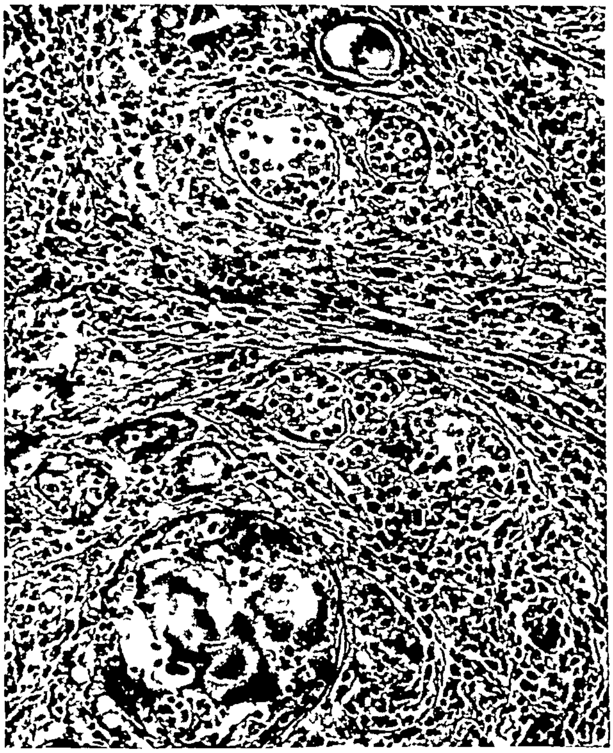

Fig 2—Photomicrograph in granulomatous or giant cell thyroiditis demonstrating invasion of stroma with neutrophilic and eosinophilic leukocytes and fibroblasts Most of the thyroid follicles have been disrupted Macrophages are seen engulfing colloid

Hashimoto's disease is definitely a degenerative type of chronic thyroiditis The patients who were observed in the early stage of the disease had a peculiar type of hypometabolism that did not respond well to thyroid medication In 51 patients the preoperative basal metabolic rate was below −10%, in 56 patients the serum cholesterol level was above 200 mg per 100 cc, and in 30 patients on whom the examination was performed the protein-bound iodine level was within normal limits (table 3)

None of the patients gave a history of infection preceding enlargement of the thyroid gland, this is in contrast to patients with granulomatous thyroiditis There was no clinical evidence to suggest that Hashimoto's disease resulted from thyrotoxicosis, either of the diffuse or adenomatous type The most frequent complaints were development of a goiter, choking or pressure sensation, nervousness, fatigue, and gain of weight associated with the hypothyroidism present in most cases, some few patients had difficulty in swallowing and others complained of tenderness of the thyroid gland (table 2) There was enlargement of the gland in every case, and in some it was quite pronounced When only one lobe of the gland was involved, a unilateral adenoma was thought to be present

Diagnosis of Hashimoto's disease should not be difficult if considered by the examiner, it more frequently occurs in women past 40 years of age who develop a painless enlargement of one or both lobes of the thyroid gland not associated with thyrotoxicosis and without evidence of inflammation The gland is of normal contour there may be marked enlargement of one lobe, which may occasionally cause this disease to be confused with carcinoma The sedimentation rate in this group of patients was normal in all but eight, in whom it was elevated (table 3)

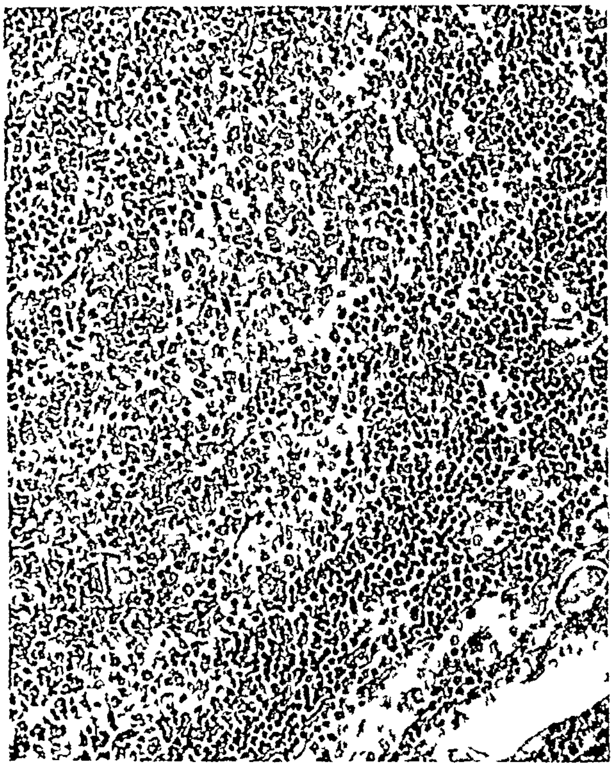

Fig 3 —Photomicrograph in early Hashimoto's disease or struma lymphomatosa demonstrating diffuse invasion with lymphocytes and plasma cells Only a few small thyroid follicles remain

Grossly, the gland is enlarged, all parts of one or both lobes are affected The resected glands varied from 25 to 190 Gm in weight, the surface was smooth and slightly lobulated The superficial veins were not enlarged as they are in toxic goiters The gland was more firmly attached to the trachea than normally and adhered to adjacent structures in 26 patients The clinical history of these 26 patients showed that they had had the disease for a longer period of time, and there was more fibrosis present than in patients whose disease was of short duration In the earlier stage of the disease the gland was friable, the capsule was thin, and the severed surface was lobular with a yellowish or brownish appearance The older glands were tougher and more resilient, but they did not have the hardness encountered in Riedel's struma

Microscopically, early Hashimoto's disease, which is of a degenerative nature, demonstrates a diffuse lymphocytic infiltration that involves all of each lobe with lymph follicles varying in size and number There are a few normal-appearing small epithelial follicles containing a scant amount of colloid Other epithelial follicles are disrupted, the epithelial cells lie in small irregular groups The supporting stroma is infiltrated with plasma cells and lymphocytes (fig 3) In some glands there are areas in which there appears to be regeneration, the thyroid follicles, although small, have regained a normal appearance[14] In older glands the lymphoid components are definitely decreased There are fewer thyroid follicles with more fibrosis Apparently, in cases of long standing, the disease has extended through cycles of exhaustion, repair with some return of function, but later regression and more fibrosis[6e]

Riedel's Struma—Riedel's struma is an invasive fibrous type of thyroiditis of unknown etiology that may involve one or both lobes of the thyroid gland The disease manifests itself by a sclerosing process, which eventually strangulates and destroys the thyroid parenchyma, thereby resulting in a mass of dense fibrous tissue resembling soft wood (woody thyroiditis) It may begin in the interior of the gland, frequently around a small degenerating adenoma, with outward spread, or else it may begin superficially and extend inward to involve the entire lobe or gland, it may simulate a slowly developing carcinoma

The involved lobe or lobes are not appreciably enlarged Adjacent tissues are invaded early by fibroblasts causing symptoms of tracheal obstruction, pressure on the esophagus producing dysphagia, and not infrequently compression of the internal jugular veins In my series, there were six patients, three males and three females, with invasive fibrous thyroiditis, three had unilateral involvement and three bilateral Two had unilateral involvement of the recurrent laryngeal nerve with vocal cord pathology (table 2) Five of the six patients had hoarseness, and all complained of severe pressure (table 2) When the lesion is limited to one lobe there may be tracheal displacement Pain is a common symptom and is referred to the back of the neck, shoulder, or angle of the jaw Dyspnea is a striking feature when there is bilateral involvement with anterior-posterior or bilateral compression of the trachea

There was evidence of hypothyroidism in five of the six patients, they had a basal metabolic rate below −10% with elevation of the serum cholesterol level above 200 mg per 100 cc (table 3) In two patients the disease developed in a goitrous gland A correct preoperative diagnosis was made in four patients, the other two were thought to have carcinoma The average age was 48 years (table 1) The disease had been present for an average of two years at the time I first saw the patients

At operation all patients had invasion and infiltration of the strap muscles, midcervical fascia, and carotid sheath resulting in an indefinite line of cleavage Frequently it was almost impossible to find a natural line of cleavage between the tissues, especially in patients in whom the disease had been present for some period of time The gland was white in color, hard, and avascular, in two patients there was an adenoma that had undergone degeneration in the center of the lobe Histological examination revealed destruction of the thyroid epithelium, with invasion by fibroblasts, inflammatory cells, monocytes, large lymphocytes, and some plasma cells (fig 4) Few capillary blood vessels remained

Lahey[15] described well the etiology of the pressure symptoms in invasive fibrous thyroiditis or other forms of thyroiditis when the gland is replaced by fibrous tissue In view of the fact that the thyroid gland surrounds at least two-thirds of the trachea, when an inflammatory process develops in both lobes and the isthmus of the gland, its normal attachments to the trachea become more firm, thereby resulting in pressure and constriction

Treatment of Acute Thyroiditis

Acute Suppurative Thyroiditis—The treatment of acute suppurative thyroiditis consists of adequate administration of antibiotics, chemotherapy, and supportive measures When there is definite abscess formation, incision and drainage of the abscess is imperative The abscess is drained through a collar incision, the skin flaps are dissected up and downward In each case, the midcervical fascia and prethyroid and sternomastoid muscles were adhered to the involved lobe of the thyroid gland A longitudinal incision is made through the prethyroid muscles to the abscess cavity Care is exercised not to break down the walls of the cavity, that would result in a mediastinitis, which could be fatal This method of treatment was utilized in the six patients with suppurative thyroiditis They made an uneventful recovery, four required desiccated thyroid extract for the control of hypothyroidism

Acute Nonsuppurative Thyroiditis—The treatment of acute nonsuppurative thyroiditis consists of adequate antibiotic therapy and x-ray therapy, with 150 r given three times weekly for a total of approximately 1,200 r over the involved lobe or lobes of the thyroid gland Corticotropin (ACTH) and cortisone were given a generous trial but proved to be of no value If the symptoms persist after a period of six to eight weeks, more definitive therapy is essential Eight patients in this series responded to the above-mentioned medical measures, 12 patients required hemithyroidectomy and 2 bilateral subtotal thyroidectomy These patients had a normal convalescence The clinical diagnosis was confirmed by aspiration biopsy in the eight patients who responded to medical measures The patients who demonstrated hypothyroidism after recovery from the disease were placed on therapy with desiccated thyroid extract, 1-3 grains (60 mg -200 mg) daily depending on the individual requirement

Treatment of Chronic Thyroiditis

Every thyroidologist has observed in his practice a considerable number of patients who have been given a clinical diagnosis of mild chronic thyroiditis These patients have few symptoms Their goiters are small, pressure symptoms are minimal, and there is no evidence of malignancy When the clinical diagnosis is established and the goiter is small and not unsightly and gives no pressure symptoms, surgical measures are postponed, these patients, most of whom have a thyroid deficiency, are given desiccated thyroid extract when there is proof of a thyroid deficiency

For some period of time aspiration biopsy was utilized to establish a diagnosis in the various forms of thyroiditis In five patients aspiration biopsy demonstrated either granulomatous thyroiditis or Hashimoto s disease, but later carcinoma was found to be present consequently, I no longer recommend this method of obtaining biopsy material In several instances it was difficult, histologically, even after thyroidectomy, to differentiate between certain cases of chronic thyroiditis and anaplastic carcinoma Bellegie and co-workers,[16] at the Mayo Clinic, have encountered the same difficulty in differentiating between these two diseases

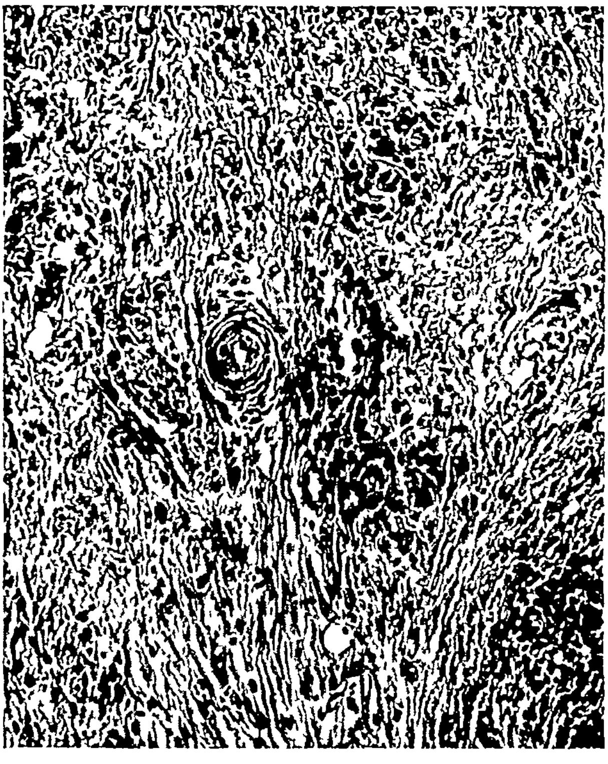

Fig 4—Photomicrograph in Riedel s struma, demonstrating diffuse invasion of thyroid tissue by fibroblasts, leukocytes, and lymphocytes with no functioning thyroid parenchyma remaining

Surgical treatment of chronic thyroiditis should be undertaken for the following reasons (1) for cosmetic purposes when the goiter is large, (2) to relieve pressure symptoms and decompress the trachea, and (3) to determine by histological examination of tissue that the enlargement is not produced by carcinoma[17]

Granulomatous or Giant Cell Thyroiditis—The 16 patients with granulomatous thyroiditis had sufficient symptoms to require surgical treatment In nine patients there was unilateral involvement, consequently, only a hemithyroidectomy was necessary In the remaining seven patients there was bilateral involvement, and a subtotal thyroidectomy was performed

Hashimoto's Disease or Struma Lymphomatosa.—Thyroidectomy was performed on all 67 patients with Hashimoto's disease. Twenty-one appeared to have only unilateral involvement, and hemithyroidectomy was performed; 46 had bilateral involvement, and subtotal thyroidectomy was performed. Six patients, whose disease apparently was unilateral and who had hemithyroidectomy, later developed the disease on the opposite side, thus requiring hemithyroidectomy on the remaining lobe. In two of these patients the intervals between the first and second operations were 14 and 18 years respectively. At the time the initial surgery had been performed, histological findings in these two cases had demonstrated marked lymphocytic infiltration with germinal centers present, thus denoting the earlier form of the disease. Histological examination of the opposite lobes, removed 14 and 18 years later, demonstrated that the gland in each case had been practically replaced with fibrous tissue, thus denoting the advanced stage of the disease.[7b] If surgical treatment is required, it is my practice at the present time to perform a subtotal thyroidectomy and not a hemithyroidectomy because of the great likelihood of future involvement of the opposite lobe, which would require a second operative procedure at a later date.

Riedel's Struma.—Hemithyroidectomy is recommended for patients with Riedel's struma who have unilateral involvement; if there is bilateral involvement the technique recommended is the one advocated by Lahey[15] in which the entire thyroid isthmus and as much as possible of each lobe is resected. Care must be exercised to avoid leaving any of the isthmus adhering to the trachea, so that the trachea is left entirely free from any adherent thyroid tissue. The edges of the severed lobes are then sutured with fine absorbable surgical sutures to prevent hemorrhage; the medial edges of the sternohyoid muscles are sutured to the trachea to cover the severed ends of each thyroid lobe. This prevents thyroid tissue from reuniting across the anterior surface of the trachea. The bellies of the prethyroid muscles and the medial portion of the sternomastoid muscles are pulled together and sutured to prevent the upper skin flap from becoming adhered to the trachea and bobbing up and down when the patient swallows. This technique gave satisfactory results in the three cases of bilateral Riedel's struma.

During the period of time that I used aspiration biopsy for diagnosis of chronic thyroiditis, radiation therapy was administered over a period of three to four weeks, with an average dose of from 1,500 to 2,000 r. It was observed that roentgen therapy produced a decrease in the size of the thyroid gland in some patients but that later thyroidectomy was necessary to relieve the pressure symptoms that were present. Histological examination of tissue demonstrated less functioning thyroid epithelium and more fibrosis than was present in the original material from aspiration biopsy. It is my contention at the present time that irradiation therapy in quantities sufficient to produce shrinkage of the thyroid gland further destroys the already embarrassed thyroid epithelium, and I no longer use this form of therapy. Desiccated thyroid extract was administered when indicated. Corticotropin and cortisone were utilize in a small group of patients with Hashimoto's diseas and granulomatous thyroiditis, with no relief of symptoms or change in consistency of the gland.

Postoperative Complications

There was no operative mortality in the group o patients who underwent thyroidectomy. Six patient had unilateral vocal cord paralysis before operation—one with granulomatous thyroiditis, three wit Hashimoto's disease, and two with Riedel's strum (table 2). This complication remained after thyroidectomy; there were no operative injuries of th recurrent laryngeal nerves. Laryngeal edema developed after operation in six patients, in two after drainage of abscess for acute suppurative thyroiditis, in tw with granulomatous thyroiditis, and in two wit Hashimoto's disease. Tracheostomy was not necessar in any of these. After operation, three patients developed transient tetany, one with Hashimoto's diseas and two with extensive bilateral Riedel's struma. Thi complication responded to medical measures within a period of eight weeks after operation.

Hypothyroidism was frequently encountered in al three types of chronic thyroiditis before and afte surgical treatment, as demonstrated by clinical examination and laboratory procedures consisting of determinations of basal metabolic rate, serum cholestero level, and, in some cases, protein-bound iodine. When a patient had clinical evidence of marked hypothyroidism or myxedema, characterized by intolerance to cold, fatigue, alopecia, marked dryness and roughness of the skin, a significant gain in weight, and, in some cases, swelling of the tongue causing slow slurred speech, he was placed on therapy with desiccated thyroid extract with commendable results.

Comment

In 1,309 consecutive operations on the thyroid gland performed between 1933 and 1955, various forms o thyroiditis were encountered in 117 patients. Acute suppurative and nonsuppurative thyroiditis most frequently follow an upper respiratory infection and are manifested clinically by tenderness and pain in one o both lobes of the thyroid gland. Local evidence o inflammation is present, dysphagia and, not infrequently, elevation of temperature and pulse rate occur. Six patients with acute thyroiditis developed suppuration with abscess formation. After sufficient response to medical measures, i.e., administration of antibiotics, chemotherapy, and supportive measures drainage of the abscess was necessary.

Twenty-two patients with acute nonsuppurative thyroiditis were treated with antibiotic therapy, cortisone, corticotropin (ACTH), and antithyroid drug were administered without results. Fourteen patient did not respond to medical therapy, and the disease persisted. Twelve required hemithyroidectomy and two bilateral thyroidectomy.

Chronic thyroiditis is divided into three groups granulomatous or giant cell, Hashimoto's disease o struma lymphomatosa, and Riedel's struma. Granulom atous thyroiditis has been designated as pseudotuberculous or giant cell thyroiditis because of the presence of large multinucleated giant cells This disease frequently follows an upper respiratory infection, its etiology is unknown The treatment is hemithyroidectomy when the disease is limited to one lobe or bilateral subtotal thyroidectomy when both lobes are involved

Hashimoto's disease or struma lymphomatosa was the most frequent form of thyroiditis encountered It is definitely a degenerative disease, one or both lobes of the gland gradually enlarge and are smooth and nontender, after a period of time, pressure symptoms develop Not infrequently the gland reaches a very large size The majority of the 67 patients with Hashimoto's disease were women past the childbearing age These patients have a peculiar type of hypometabolism, in some progressing into myxedema Microscopically the early phase of the disease is *manifested by a diffuse lymphocytic infiltration of the* gland, with varying numbers of germinal centers and with few remaining epithelial follicles In the later phase, the lymphoid components are replaced by fibrosis with few functional thyroid follicles remaining Patients with small, smooth glands and without symptoms of pressure or without evidence of carcinoma are treated medically and observed at intervals If the gland is large and unsightly and gives pressure symptoms or if doubt exists whether carcinoma is present, operation is advised, a subtotal thyroidectomy gives the best results

Riedel's struma or fibrous invasion thyroiditis was encountered in six patients The disease was unilateral in three and bilateral in three At operation there was invasion and infiltration of the cervical fascia, strap muscles, trachea, and carotid sheath, with an indistinct line of cleavage If the disease is unilateral, an attempt is made to do a hemithyroidectomy, when the disease is bilateral, the operative procedure developed by Lahey[15] gives the best results In this procedure the isthmus and as much of each lateral lobe of the thyroid as possible are resected The prethyroid muscles are sutured to the tracheal fascia and to the edges of the severed lobes in order to prevent the thyroid tissue from reuniting across the anterior surface of the trachea and to eliminate pressure symptoms

For a period of time, I used aspiration biopsy to establish a diagnosis in chronic thyroiditis Five patients whose initial diagnosis, established by aspiration biopsy, was made by me and three others referred to me after diagnosis was established by this method were judged to have either granulomatous thyroiditis or Hashimoto's disease Later these patients were found to have carcinoma, consequently, I no longer advocate this method of obtaining material for histological study

Radiation therapy was formerly utilized in the treatment of granulomatous or Hashimoto's thyroiditis after diagnosis was established by aspiration biopsy In both of these forms of thyroiditis the thyroid gland is already embarrassed and in a state of hypofunction Irradiation therapy given in quantities sufficient to produce any reduction in size of the gland only further serves to destroy the remaining thyroid epithelium and reduce thyroid function Consequently, I do not use irradiation or radioactive iodine (I^{131}) in the treatment of granulomatous or Hashimoto s thyroiditis The antithyroid drugs, corticotropin (ACTH), and cortisone have been used, but without benefit, to relieve symptoms or to reduce the size or consistency of the gland There were no operative deaths in this series of patients with thyroiditis who were treated, and no serious complications resulted from the operative procedures

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8 Footnotes 5, 6*e*, and 7*b*

9 Footnote 6*a* and *b*

10 Footnotes 3 and 6*b*

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CLINICAL EVALUATION OF SCOLIOSIS

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• Early recognition of scoliosis is possible if the back is examined with the patient bending forward This should be part of every physical examination in children Deformity increases most during the period of rapid vertebral growth from 11 to 15 years of age unless it is corrected The severity of scoliosis is expressed in degrees of angular measure as determined on the roentgenogram If it exceeds 30 degrees, complete restoration is no longer likely to be achieved because the average amount of correction obtained by traction, body casts, and surgical fusion of the affected vertebrae is about 25 degrees The use of a localizer cast makes it possible to keep the patient ambulatory all the time, except for the 7 to 10 days after surgery The total period of immobilization of the patient's back after operation is 8 to 10 months

The clinical evaluation of scoliosis is dependent upon the information about the condition in general and of the patient in particular Our first duty to the scoliotic patient is the recognition of the deformity and the determination of whether the deformity is postural or structural By having the patient bend forward one can recognize easily the presence of an asymmetry of the two sides of the back (fig 1) This bending should be done in every examination of a child If the deformity of the spine disappears and if there is no unilateral deformity in this forward-bend position, it is postural If the asymmetry is very slight and the curvature is 10 degrees or less, much can be accomplished with stretching and postural recumbent and hyperextension exercises in these early cases where structural deformity is minimal or has not occurred (fig 2)

Scoliosis is commonly detected when the deformity becomes noticeable, at about 25 or 30 degrees At this time structural wedging has already occurred, with apical vertebral rotation (fig 3) With this severity correction is only possible with traction and lateral bend, as in the turnbuckle cast or the localizer cast

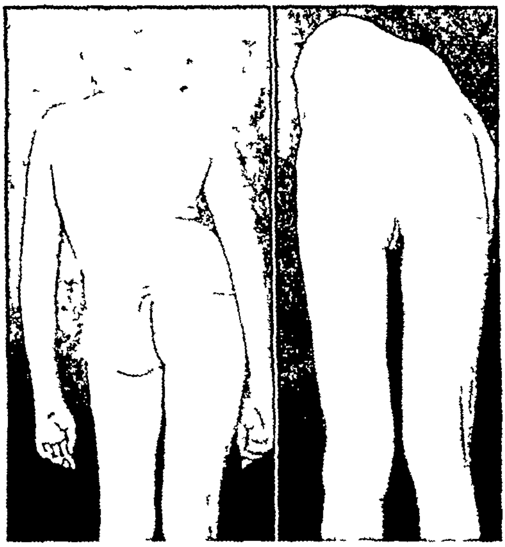

Fig 1 —Recognition of scoliosis by having patient bend forward Note unevenness of right and left sides of back

Without treatment increasing deformity will occur with vertebral growth Since growth is segmental, there is usually a slow growing period from the age of 6 to 10 years, with little increase in the curvature However, with rapid vertebral growth, during the period from 11 to 15 years (fig 3), there may be and commonly is a rapidly increasing deformity The deformity may be made much worse, even in slow growing periods, by the poor integrity or structure of bone due to deficiency disease (fig 4)

Comparative vertical height measurements, standing, sitting, and kneeling, are helpful in getting information about growth of the patient The initial examination of a patient should also include a standing anteroposterior roentgenogram to show the condition's true severity and a lying anteroposterior view to show how much natural relaxation or correction occurs A lateral view of the spine gives information about the presence of anteroposterior curves and also about the type of bone present Bone showing epiphysial fragmentation and delay in development, as well as osteoporosis, will allow a more rapid increase with vertebral growth Cessation of vertebral growth is determined by comparative height measurements Roentgenographic evidence of presence of the iliac apophysis gives advance notice to the completion of vertebral growth Since a scoliotic deformity is static with growth completion, treatment is not necessary in these cases, except to gain and maintain correction or to relieve pain that might be present in the adult patients

The decision to correct the deformity must be left to the patient, after he has received sufficient information on the amount of possible correction and the treatment required Relief of pain may be a second objective in these patients

Correction is obtained by traction and lateral bend by which means the turnbuckle cast obtains excellent results Equally good results are obtained by the localizer body cast (fig 5), without the handicaps of the turnbuckle, such as recumbency and hospitalization

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Correction with a localizer is obtained by traction, lateral bend, and local posterolateral pressure over the rib angulation At this time the corrective cast is applied (fig 6) The patient is ambulatory immediately, which is a beneficial factor for the patient and economical as well

To maintain correction obtained by the cast, surgical immobilization of the entire area of the curve is necessary Apical rotation and angulation, both of which are characteristics of a curvature, must be included in the fusion area The curve is measured most easily by Ferguson's[1] method of centering the most rotated vertebra at the apex of the curve and then centering the neutral vertebrae that are without rotation or angulation at the ends of the curve The lines connecting these dots will form an angle, which can be read as the degree of curvature The fusion area should include this entire extent of the curve

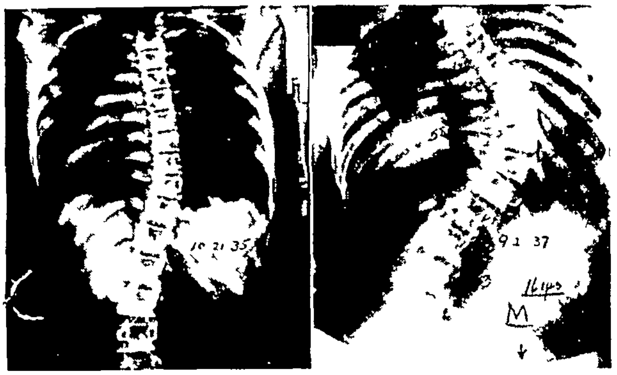

Fig 2—Angulation with little if any rotation in thoracic vertebrae, but angulation and rotation in the lumbar curve in 14-year-old patient Degree of deformity is same Note increase of deformity in two years, during period of rapid vertebral growth

The flexibility or correctibility of a curvature is less with the chronicity of the curve—the older the patient, the higher the curve is in the thoracic area The average amount of correction is about 25 degrees

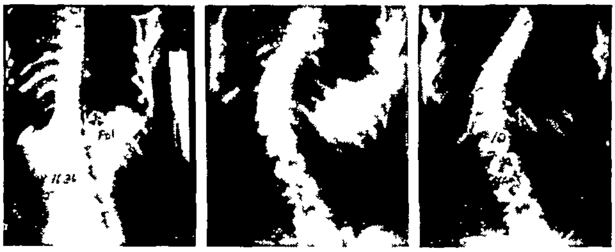

Fig 3—*Left* roentgenogram of patient at 11 years of age who had poliomyelitis at 8 years *center* at 16 years, *right*, at 19 years Note increase in deformity With completion of iliac apophysis, there has been no increase in deformity

Percentagewise the best results are in the smaller curvatures In a 30-degree curve, 25 degrees of correction would result in a residual 5-degree deformity, whereas, in a 50-degree deformity, 25 degrees of correction would result in a 25 degree deformity, which is still quite noticeable and objectionable Correction and fusion should be done on structural deformities when first noticed, particularly if there is much expected vertebral growth Correction should be centered on the most deforming curve, which is commonly the thoracic curve In more severe cases, both thoracic and lumbar curves should be corrected and fused

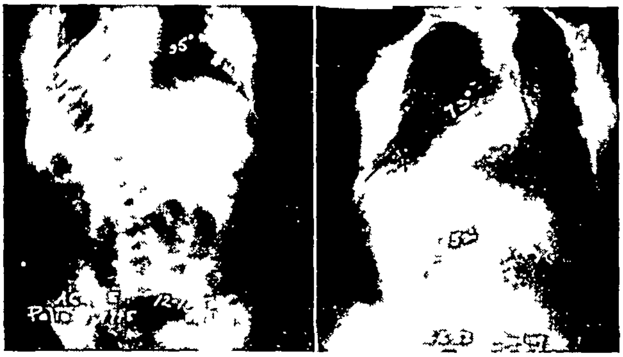

Fig 4—Rapid increase of scoliosis even before period of rapid vertebral growth in patient who had poliomyelitis at 7 years of age This patient had 12 fractures of the long bone prior to her poliomyelitis, indicating a weak bone structure The type of bone will determine the rapidity of increase in scoliosis (*left* aged 8 *right*, aged 10)

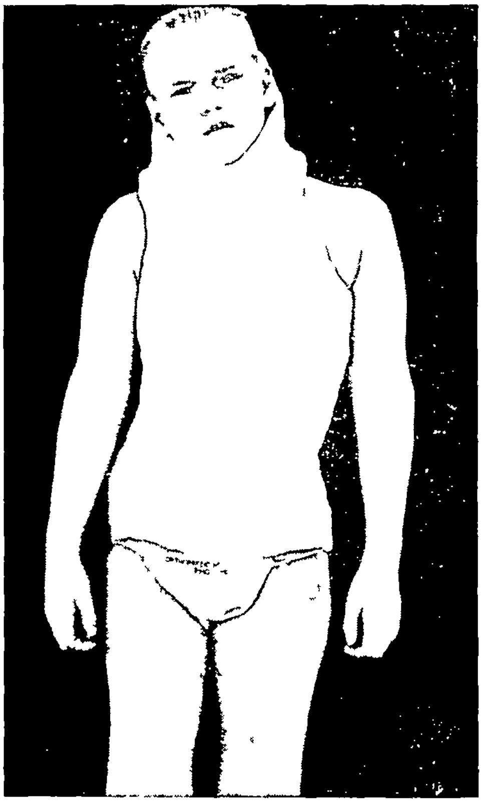
Fig 5—Completed localizer cast Note correction with slight lateral bend in cast Patient is ambulatory

With the localizer cast the patient is ambulatory all the time, except for the 7 to 10 days after surgery Correction is obtained by one or two casts, two to four weeks apart, prior to surgery Surgery is accomplished through a posterior window in the cast or through a bivalved cast One week later a new snug localizer cast is applied Three or four months later the cast is changed and the roentgenograms are taken for check of the fusion area The total postoperative period of immobilization is about 8 to 10 months Roentgenographic examination of the solidity of the fusion is the guide to the removal of the cast

Failures in maintaining correction are due to inadequate length of fusion or inadequate strength of fusion These difficulties can happen to any surgeon and should be suspected in every case Correction of pseudarthrosis should be done when recognized If there is any loss of correction in a deformity, we may readily attribute it to the fact that the fusion is too short or the fusion is not strong enough In the growing child a pseudarthrosis or short fusion can be a cause for increasing deformity In those with completed vertebral growth, there will be a loss of correction comparable to the flexibility in the area involved Pain may or may not be present (fig 7)

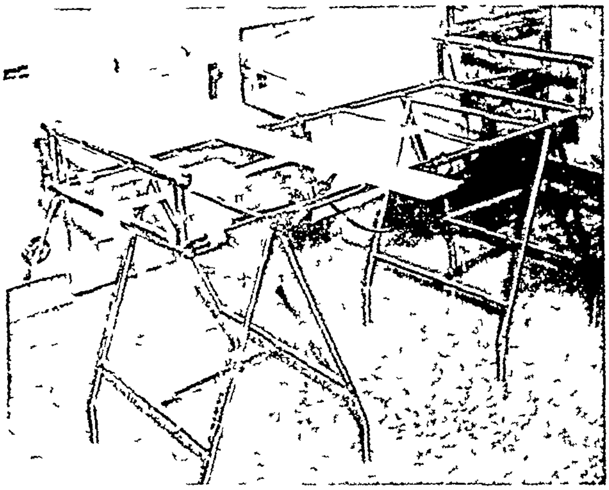
Fig 6 —Scoliosis casting table Note localizer are attached under side bars of table Patient lies supine on pull-out strap while under head and pelvic traction Localizer jack tip directs corrective pressure posterolaterally over the rib angulation

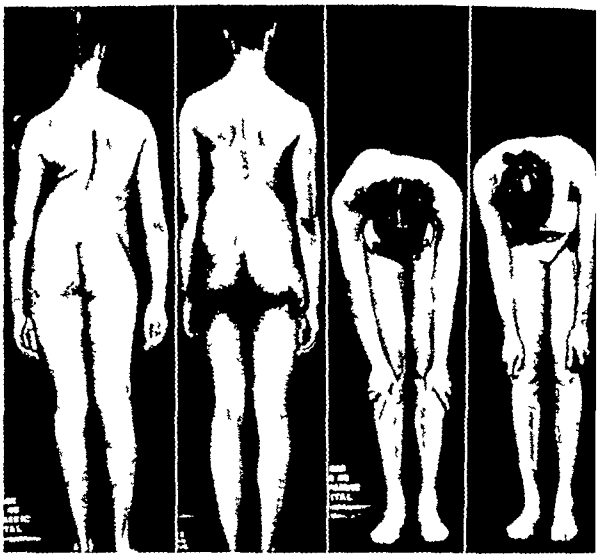
Fig 7 —Rib angulation with bending forward in 14 year-ol girl with severe scoliosis After correction and fusion, note correction of rib angulation bending forward

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Diagnosis of Leukemia in Children —When one sees a young child who has anemia, enlargement of the liver, spleen and lymph nodes, purpuric manifestations and an increase in the number of leukocytes and lymphocytes, with or without immaturity in the latter cells, the diagnosis of leukemia must be made with caution because of the pronounced lability of the bone marrow and blood of young children in response to acute and chronic infections, intoxications, malignant lesions and severe hemorrhage By careful and repeated observation of both the peripheral blood and bone marrow, it is usually possible to rule out the diagnosis of leukemia when the child is actually suffering from some other disease By far the largest number [of 44 patients referred to the Mayo Clinic] because of the suspicion that they might have leukemia had acute infections to which their blood reacted by the presence of leukocytosis, lymphocytosis or both Four of the children had pertussis, one of these had a leukocyte count of 130,000 per cubic millimeter of blood, of which 80 per cent were immature lymphocytes This patient was less than a year old, an age when the response of blood to infection may be greatly exaggerated Other children in this group had acute infections of the respiratory, gastrointestinal or urinary tract or other evidence of sepsis Some patients with atypical rheumatic fever or acute exacerbations of rheumatoid arthritis presented difficulties in diagnosis Five children had infectious mononucleosis, which is easily confused with leukemia because of the enlarged liver, spleen and lymph nodes and the increase in lymphocytes in the blood The presence of the atypical lymphocytes associated with infectious mononucleosis and of a high heterophil titer was helpful in the differential diagnosis in these cases —S D Mills, M D , Differential Diagnosis of Acute Leukemia in Children, *The Medical Clinics of North America,* July, 1956

ANESTHESIA FOR SPLENECTOMY IN PATIENTS WITH BLOOD DYSCRASIAS

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• *The choice of anesthetics for patients undergoing splenectomy is considered on the basis of experience with 205 patients who had various blood dyscrasias. Congenital spherocytosis was present in 33 patients, and light cyclopropane anesthesia plus administration of tubocurarine, with controlled respiration, was used in 22 of these. It afforded a stable cardiocirculatory state without significant complications either during or after surgery. A second group consisted of 49 patients with acquired hemolytic anemia, a third of 79 with thrombocytopenic purpura, and a fourth of 44 patients with pancytopenia, neutropenia, and aplastic anemia. Complications were most numerous in the purpuric group, in which the splenectomy often failed to have a therapeutic effect, so that there were seven postoperative deaths. It was not found necessary to choose anesthetic agents for the sake of their effects on the contractility of the spleen. The choice was made, rather, on the basis of the patient's liability to hemorrhage and hypotension. Endotracheal and intestinal intubation were avoided whenever the platelet count was low, in order to reduce the danger of bleeding; spinal anesthesia was avoided when the circulating blood volume was low. The policy was to maintain an adequate blood volume with transfusions of fresh, whole blood, but to transfuse cautiously in cases of acquired hemolytic anemia because of the hazard of severe hemolytic reactions.*

Splenectomy for patients with specific types of blood dyscrasias is of therapeutic value, and in many instances the operation is performed in the presence of a reduction of blood cells or platelets or both in spite of intensive preparation.[1] The physiological anesthetic management of patients with hematological disorders requiring an intra-abdominal operation is based upon an understanding of the pathological entities.

The relationship of the splenic functions to the blood dyscrasias has been described by Dameshek, Doan, and others.[2] Dameshek believes that the spleen normally exerts an inhibitory effect on the bone marrow and also has a direct phagocytic effect on the cellular blood elements. The term 'hypersplenism' indicates an accentuation of these functions. When this occurs, phagocytic or hemolytic activity is increased and the escape of the mature cells from the bone marrow is blocked. Either a pancytopenia (total reduction of all cellular elements of the blood) or a selective cytopenia (anemia, thrombocytopenia, or neutropenia) may ensue (table 1). Hypersplenism is classified into two groups: (*a*) primary hypersplenism, a primary or idiopathic disorder of the spleen, and (*b*) secondary hypersplenism, a complication of a coexisting disease. It is also believed that an antigen-antibody reaction plays a part in the destruction of the blood cells in certain cases of hypersplenism[3] and may explain in part the response to the administration of corticotropin (ACTH) and corticosteroids.

The clinical indications for splenectomy are divided into three main groups: (1) the hypersplenic hemolytic anemias, (2) the hypersplenic cytopenias, and (3) splenism. 'Splenism' is a term denoting the inhibitory effect of the normal spleen on the bone marrow. When the bone marrow is hypofunctioning, this normal inhibitory effect of the spleen accentuates the hypoplasia, as, for example, in patients with hypoplastic anemia.

Preoperative Preparation

Although the hematologist is primarily responsible for the clinical preparation of these patients, it is important that the anesthetist and surgeon also share the responsibilities for the preoperative preparation. Either fresh whole blood, fresh polycythemic blood, or packed platelets are given to patients with thrombocytopenic purpura before and during surgery. The bleeding is less when a platelet-rich transfusion is administered during surgery. To avoid disintegration of the platelets, the blood is collected by gravity in plastic containers.

Blood transfusions should be given cautiously to patients with acquired hemolytic anemia because a severe hemolytic reaction may occur. Frequently, the transfused red blood cells hemolyze rapidly. When there is no improvement in the red blood cell count, splenectomy is frequently performed and can serve as a lifesaving procedure.

The administration of corticotropin or corticosteroids such as cortisone, prednisone (Meticorten), or hydrocortisone often will cause a remission in patients with idiopathic thrombocytopenic purpura and acquired hemolytic anemia. In any event, corticotropin or the corticoids are routinely given before surgery because the blood cell or platelet count may increase in many of these patients.

The type and dosage of preoperative hypnotic and sedative medicaments depend on the type of blood dyscrasia, on the patient's age and physical condition, and on the presence or absence of coexisting disease

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Narcotics may cause profound respiratory depression in patients with anemia, and it is therefore advisable to use a barbiturate rather than morphine. Either a barbiturate or morphine may be used safely in patients with thrombocytopenic purpura, because most of these patients have normal hemoglobin values.

TABLE 1.—*Types of Hypersplenism*

Type	Pathology	Clinical Condition
Primary or idiopathic	Deficiency or decrease in circulatory platelets	Idiopathic thrombocytopenic purpura
	Deficiency or decrease in circulatory red blood cells	Hereditary hemolytic anemia (spherocytosis) Acquired hemolytic anemia
	Deficiency or decrease in circulatory neutrophils	Splenic neutropenia
	Deficiency or decrease in all three elements	Splenic pancytopenia
Secondary	Deficiency of any one or combination of the cellular elements in blood secondary to known disease (Boeck's sarcoid, leukemia, portal hypertension due to Hodgkin's disease, nonpyogenic infectious states causing splenomegaly)	Secondary thrombocytopenic purpura Acquired hemolytic anemia Neutropenia Pancytopenia

Anesthetic Agent and Technique

The choice of the anesthetic agent and technique depends upon the type of blood dyscrasia and the surgical approach. There are three generally accepted approaches for the surgical removal of the spleen: transthoracic, thoracoabdominal, and abdominal. One observer believes that the abdominal approach is preferable to the transthoracic route and that exploration of the abdomen is an important part of a celiotomy for splenectomy.[1a] Frequently, patients with hereditary spherocytosis have cholelithiasis, and, when this occurs, cholecystectomy is performed in addition to splenectomy.

Complete abdominal muscular relaxation is essential to facilitate the surgical removal of the spleen via the intra-abdominal route. Other factors of equal importance are minimal movements of the diaphragm and the viscera necessary to permit a careful dissection of the spleen from its attachments. These conditions are achieved by the administration of a muscle relaxant during light levels of general anesthesia. Whenever the muscle relaxants are administered, we believe it is essential that the patient's respirations be either controlled or assisted by the anesthetist to avoid respiratory acidosis. Controlled respiration is preferred because by this method the diaphragm rises and becomes motionless, the spleen is visualized easily, and a quiet surgical field is obtained. Depression of the vasomotor center and the peripheral circulatory mechanisms usually does not occur when the anesthesia is light.

TABLE 2.—*Number of Patients in Each Hemoglobin-Value Group by Clinical Diagnosis*

	Gm. of Hemoglobin/100 Cc. of Blood		
Diagnosis	6-9	9.1-12	12.1-15
Hereditary spherocytosis		28	5
Acquired hemolytic anemia	17	29	3
Idiopathic thrombocytopenic purpura	5	26	32
Secondary thrombocytopenic purpura	2	10	4
Pancytopenia (primary and secondary)	3	9	7
Neutropenia (primary and secondary)	1	6	5
Hypoplastic anemia	3	10	
Total	31	118	56

Some observers state that the use of ether may be beneficial because it contracts the spleen and expels blood into the systemic circulation.[4] This phenomenon is presumed to occur via the stimulation of the sympathetic nervous system.[5] It has also been stated that thiopental sodium, cyclopropane,[5] and spinal anesthetics[6] cause the spleen to enlarge. These findings were based on observation of the effects of various anesthetic agents on the dog's spleen. The dog's spleen has a well-developed smooth muscle capsule with a strong contractile power, as opposed to the human spleen, which has few muscle fibers in the capsule.[7] It is, therefore, questionable whether anesthetic agents can significantly contract the normal-sized human spleen. In patients with long-standing enlargement of the spleen associated with hereditary spherocytosis, it has been noted that the spleen does not contract after the injection of epinephrine.[8] On the other hand, epinephrine and presumably ether will contract the enlarged spleen in patients with pancytopenia and neutropenia. Although this may occur, we believe that the choice of an anesthetic agent should not be based solely on the fact that its contractile effect on the spleen increases the red blood cell count and blood volume with abnormal blood. An adequate circulating blood volume can be easily maintained with fresh whole blood transfusions.

TABLE 3.—*Number of Patients by Clinical Diagnosis, in Whom Each Anesthetic Technique Was Used*

	Inhalation		
Diagnosis	Intubation*	Without Intubation†	Spinal‡
Hereditary spherocytosis	21	10	2
Acquired hemolytic anemia	42	6	1
Idiopathic thrombocytopenia purpura	2	23	38
Secondary thrombocytopenic purpura	8	4	4
Pancytopenia	12	3	4
Neutropenia	11	1	
Hypoplastic anemia	5	4	4
Total	101	51	53

* Respiration controlled.
† Respiration assisted or spontaneous.
‡ With supplementary intravenous and/or inhalation anesthesia.

It has been observed that cyclopropane depresses the circulation less than other agents used in inhalation anesthesia.[9] It has also been shown that it exerts a pressor-like effect on the peripheral vascular bed[10] and aids in sustaining an effective blood pressure in the presence of surgical blood loss.[11] In view of these observations it is apparent that the choice of an anesthetic agent should be based on its effect on the circulation rather than on its effect upon the spleen. Cyclopropane and other agents do not significantly affect the bleeding and clotting time of blood.[12] An increase in oozing from the blood vessels during surgical anesthesia may be due to carbon dioxide retention.[13]

Usually there are exacerbations and remissions in the course of thrombocytopenic purpura. Although splenectomy is elective in most instances and is performed during a remission, the platelet count is usually less than normal. In other instances, the operative procedure is performed during an acute episode to prevent intracranial hemorrhage or exsanguination The choice of the anesthetic technique is particularly important because of the low platelet count and prolonged bleeding time We feel that endotracheal intubation is contraindicated in patients with thrombocytopenic purpura because it might cause excessive hemorrhage in the tracheobronchial mucosa

Some observers believe that a spinal anesthetic should not be given to patients with prolonged clotting time because of the danger of subarachnoid hemorrhage [14] The clotting time in patients with thrombocytopenic purpura is usually normal, the bleeding time is prolonged We have, however, seen no complications due to hemorrhage in subarachnoid or epidural spaces Since most all of these patients have normal blood volumes and near normal hemoglobin values, spinal anesthesia supplemented with light cyclopropane anesthesia is preferable to deep inhalation anesthesia Assisted or controlled respiration is usually necessary during deep anesthesia When this is done without the use of an endotracheal tube, acute distention of the stomach may occur Spinal anesthesia should not be used during an acute exacerbation of the disease when the patient is hemorrhaging and has a low hemoglobin value and a low circulating blood volume When this occurs, light cyclopropane anesthesia supplemented with small doses of muscle relaxants is used without an oropharyngeal airway or endotracheal tube

Material and Results

From 1950 to 1955, 205 patients with hematological disorders were anesthetized for splenectomy For purposes of analysis, the patients were classified according to the clinical diagnosis

TABLE 4 —*Number of Patients, by Clinical Diagnosis, Undergoing Anesthesia with Various Agents*

Diagnosis	Cyclo propane Tubo curarine Chloride	Ethyl Ether with Nitrous Oxide or Vinyl Ether	Thiopental Sodium Nitrous Oxide Tubo curarine	Tetra caine Hydro chloride Cyclo propane
Hereditary spherocytosis	22	8	1	2
Acquired Hemolytic anemia (primary and secondary)	41	5	2	1
Idiopathic thrombocytopenic purpura	16	8	1	38
Secondary thrombocytopenic purpura	9	2	1	4
Pancytopenia (primary and secondary)	10	3	2	4
Neutropenia (primary and secondary)	11		1	
Hypoplastic anemia	7	2	0	4
Total	116	28	8	53

Hereditary Spherocytosis—There were 33 patients with hereditary spherocytosis, with an average age of 18 years Three patients were over 40, and 16 were under 20 years of age The hemoglobin values ranged from 9 5 to 16 Gm per 100 cc of blood (table 2) The anemia was not as severe as that observed in patients with acquired hemolytic anemia

Cyclopropane plus tubocurarine chloride was used in 22 patients, spinal anesthesia in 2 patients, ether in 8 patients, and thiopental–nitrous oxide–curare in one patient (tables 3 and 4) It was observed that a stable cardiocirculatory state was maintained when there was light cyclopropane anesthesia plus administration of tubocurarine, with controlled respirations There were no significant complications either during or after surgery (table 5)

Acquired Hemolytic Anemia—Splenectomy was performed on 49 patients with acquired hemolytic anemia, primary in 27 and secondary in 22 The average age was 42 years (range 8 months to 77 years) Six patients of this group of 49 had pulmonary disease consisting of either bronchitis or pulmonary emphysema and 16 had cardiocirculatory disease diagnosed as coronary artery disease and arteriosclerotic heart disease

TABLE 5 —*Number of Patients, by Clinical Diagnosis, with Various Nonfatal Postoperative Complications*

Diagnosis	Ate lectasis	Pneu monia	Pul monary Embolus	Myo cardial Infarc tion	Cerebral Vascular Accident	Spinal Headache
Hereditary spherocytosis						
Acquired hemolytic anemia (primary and secondary)		1	1			
Thrombocytopenic purpura (primary and secondary)	3	2	1	1	2	3
Pancytopenia						
Neutropenia						
Hypoplastic anemia						1
Total	3	3	2	1	2	4

The average preoperative hemoglobin value per 100 cc of blood was 9 7 Gm (range 6 4 to 12 7 Gm) (table 2) In 7 of the 49 patients the hemoglobin value was less than 8 Gm per 100 cc Transfusions of packed red blood cells were given primarily to increase the red blood cell count without increasing the total blood volume In seven patients washed red blood cells were administered to avoid reactions related to the plasma constituents Six patients demonstrated cold agglutinins in their blood, and they were given transfusions of warmed blood

Endotracheal cyclopropane-curare anesthesia, with controlled respirations, was administered in 41 of the 49 patients Ether was used in five patients, thiopental–nitrous oxide–curare in two patients, and spinal anesthesia in one patient (tables 3 and 4) Systemic arterial hypotension (a fall in systolic blood pressure of more than 25%) was associated only with excessive blood loss or deep levels of anesthesia The periods of hypotension in all instances were transient, a prompt pressure response occurred after adequate blood replacement or after lightening the levels of anesthesia Manual control of respiration during surgery did not apparently cause any change in the blood pressure even in instances of sudden hemorrhage or undue depths of anesthesia Bronchospasm occurred in three patients, and this complication was relieved by the intravenous administration of small amounts of succinylcholine

Two patients in this group had major postoperative complications one had a nonfatal pulmonary infarct and one had pneumonia (table 5) There was one postoperative death 30 days after splenectomy, due to a continuation of the hemolytic anemia

Thrombocytopenic Purpura —Splenectomy was performed on 79 patients with a diagnosis of thrombocytopenic purpura Of this group, 63 patients, with an average age of 28 years, had primary disease and 16, with an average age of 41 years, had secondary disease

Primary Thrombocytopenic Purpura The patients with idiopathic or primary thrombocytopenic purpura had an average platelet count of 53,200 per cubic millimeter (range 51,200 to 306,000) Endotracheal and intestinal intubation were not performed whenever the platelet count was less than 100,000 because of the danger of initiating pharyngeal, laryngeal, or tracheal hemorrhage However, endotracheal intubation was performed in two patients who responded to steroid therapy with a normal platelet count and bleeding time

Ten patients had hemoglobin values less than 10 Gm per 100 cc of blood, and the combination of anemia and thrombocytopenia presented a difficult anesthetic problem These patients were anesthetized with cyclopropane by mask to-and-fro absorption technique plus minimal amounts of tubocurarine Spinal anesthesia was not used because of the decreased circulatory blood volume, and endotracheal technique was avoided because of the increased bleeding time Fifty three of the patients had normal hemoglobin values Thirty-eight of these were given spinal plus light cyclopropane anesthesia Inhalation anesthesia was used to prevent reflex retching or perception of pain associated with traction on the splenic pedicle Five of the patients who were under 10 years of age were anesthetized with cyclopropane and a muscle relaxant Open-drop ether was used in eight children and infants whose ages were under 5 years (range 6 weeks to 5 years)

Secondary Thrombocytopenic Purpura Of the 16 patients with secondary thrombocytopenia, 8 had platelet counts ranging between 100,000 and 200,000 per cubic millimeter and received endotracheal inhalation anesthesia Four patients with low platelet counts and normal hemoglobin values received spinal anesthesia Two patients received inhalation anesthesia without intubation because the platelet count was less than 50,000 per cubic millimeter and the hemoglobin level was less than 9 Gm per 100 cc Two infants received ether by open-drop technique

Headaches occurred in three patients, and there were no other postoperative complications associated with spinal anesthesia Blood was aspirated from the subarachnoid space following a lumbar puncture in 1 out of 42 patients who received spinal anesthetics, and no neurological sequela occurred There were five patients who had postoperative pulmonary complications, three with atelectasis and two with pneumonia Endotracheal suction had not been used in these patients because of a poor platelet response after splenectomy and the danger of causing tracheal hemorrhagic edema One patient developed a myocardial infarction on the third postoperative day and recovered The response of platelet formation immediately after splenectomy is often exaggerated, and the platelet count may rise to over a million This may be a factor in the occurrence of a coronary thrombosis

There were seven postoperative deaths Splenectomy did not produce a therapeutic effect in these patients, the platelet count remained low and bleeding continued In two of these patients cerebral hemorrhage was the cause of death In the other four the cause of death was prolonged hemorrhage into either the gastrointestinal tract or the thoracic, ab dominal, or uterine cavity as well as at the site of surgery It was of interest to find tracheobronchial hemorrhage during postmortem examination in one of these patients who had received spinal anesthesia

Pancytopenia, Neutropenia, and Aplastic Anemia —There were 44 patients with a diagnosis of pancyto penia, neutropenia, or aplastic anemia Nineteen patients with pancytopenia (primary in 10, secondary in 9) had an average hemoglobin level of 10 Gm per 100 cc and an average platelet count of 122,000 per cubic millimeter Twelve patients with neutropenia (primary in 9, secondary in 3) had normal hemoglobin and platelet values prior to surgery Thirteen patients with hypoplastic anemia had an average hemoglobin value of 10 8 Gm per 100 cc and an average platelet count of 202,000 per cubic millimeter Tables 3 and 4 show the techniques and agents used in this group of patients The use of inhalation anesthesia with or without endotracheal intubation and of spinal anesthesia was dependent upon the platelet count, hemoglobin value, and circulating blood volume There were no major postoperative complications in this group

Summary and Conclusions

A series of 205 patients with blood dyscrasias underwent splenectomy The presence of severe anemia, prolonged bleeding time, or decreased circulating blood volume are the major factors to be considered in the selection of the anesthetic technique and agent It appears more reasonable to choose an agent on the basis of these factors than on the basis of its effect on the spleen Contraction of the spleen in patients with blood dyscrasias may introduce abnormal blood elements into the general circulation It is preferable to maintain an adequate circulating blood volume with fresh whole blood transfusions

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Dr William Dameshek gave permission to report the patients in this series

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CLINICAL EXPERIENCES AND STUDIES IN CURLING'S ULCER

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• *Evidence of gastrointestinal (usually duodenal) ulceration was seen in 20 out of 1,000 patients hospitalized for burns over a period of 78 months The ulceration was found at autopsy in 17 of the 80 patients who died it was accepted as the immediate cause of death in 4 The concentration of uropepsin in the urine was higher in the patients with the more severe burns, and this was associated with high concentrations of pepsin and hydrochloric acid in the gastric juice*

Weigel and co-workers,[1] in a survey of the literature beginning with the first reports by Swan and Curling and continuing to January, 1953, found a total of 139 cases of gastrointestinal ulceration after burns Woldman [2] analyzed the results of 943 consecutive autopsies and reported three cases of acute ulceration of the upper gastrointestinal tract in six cases of severe burns In 1953, Bothe and Magee [3] reported an additional case of multiple Curling's ulcers of the esophagus, stomach, and duodenum in a 68-year-old woman who had a burn covering 25% of the body surface

The development of gastrointestinal ulceration after thermal injury is a serious complication that has been seen with increasing frequency since the establishment of the burn division of the surgical research unit, Brooke Army Medical Center A review of the experience with Curling's ulcer at this unit and of a series of gastric studies performed on burned patients forms the basis of the present report

Clinical Experience with Twenty Cases

Incidence—During the period of six and one-half years from December, 1949, through May, 1956, 1,000 burned patients have been hospitalized at Brooke Army Hospital The total number of deaths among these patients was 80 during this same period Gastrointestinal ulceration was found in 17 of the 80 patients who died Three patients survived who were thought to have had Curling's ulcer (table 1) From December, 1949, to January, 1953, only 20 patients died The five cases of Curling's ulcer that occurred among these 20 patients were reported by Weigel and co-workers [1] in 1953 (cases 1 through 5, table 1) Because the burns treated by the surgical research unit have increased in severity since 1953, the number of deaths per year has increased since that date, as have the number of patients with Curling's ulcer However, the incidence of gastrointestinal ulceration after thermal injury found at autopsy at this unit (21%) remains approximately the same as that reported by Weigel and co-workers (25%)

The incidence of gastrointestinal ulceration among all burned patients admitted to Brooke Army Hospital over the period of six and one-half years was 2% (a total of 1,000 patients of whom 20 had ulcers) Although the incidence of 21% found at autopsy is unquestionable, the over-all incidence of 2% is probably lower than the actual occurrence Patients in this series were considered to have recovered from Curling's ulcer only if the massive hemorrhages in the upper part of the gastrointestinal tract responded to the administration of 2,000 to 3,000 cc of blood during a 12-hour to a 24-hour period Other patients may well have had gastrointestinal ulceration Drainage through a gastric suction tube showed the presence of bright red blood in several patients, and others complained of abdominal pain When these patients were treated medically, their symptoms subsided

Extent of Burn—The distribution of age and sex of the patients who developed Curling's ulcer corresponds roughly to the normal composition of the patient population in the burn ward In general, the patients with extensive burns were the ones who developed gastrointestinal ulceration Three patients with less severe burns also developed Curling's ulcer (cases 8, 18, and 19) In each case, however, these smaller burns were accompanied by an added insult, the

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From the Surgical Research Unit, Brooke Army Medical Center, Fort Sam Houston Texas patient in case 18 had an open fracture of T-12 with paralysis, while the patients in cases 8 and 19 had septicemia as a complication The average percentage of the body surface burned in the 20 patients who developed Curling's ulcer was 61%, including a third-degree involvement of 42% Considering only those patients who died, the average total involvement was 64%, with a third-degree involvement of 45% The three patients who survived had an average of 43 3% of the body surface burned, with 25% being third-degree burns

Symptoms—Seven patients in this series had no signs or symptoms of upper gastrointestinal ulceration, although the lesions were found at autopsy Two patients (cases 8 and 14) had abdominal complaints compatible with the presence of a penetrating peptic ulcer One patient (case 6) developed a rigid abdomen, although his ulceration did not penetrate through the submucosa of the duodenum Acute hemorrhage was the first sign of pathology in 10 instances These patients were without recognizable prodromal symptoms The day of hemorrhage varied from the 2nd postburn day to the 48th however the hemorrhage generally occurred within the first three weeks after thermal injury, with the average being 18 5 days after injury Perforation occurred only twice (cases 2 and 8) The exact date of perforation is not known in these two patients, but it was probably sometime during the second month after injury In both instances the perforation was fatal Two patients had ulcers that penetrated into the pancreas (cases 7 and 14)

Location of Ulcer—The location of the ulceration in most of the patients in this series was in the duodenum In nine cases the duodenum alone was involved, while both the duodenum and stomach were ulcerated in three patients In three cases there were ulcerations in the stomach alone, and in one patient the duodenum and jejunum were ulcerated The exact site of the ulceration was unknown in four cases These included three patients who lived and one patient on whom an autopsy could not be obtained Multiple ulcerations were found at autopsy in seven patients The other autopsies revealed only one ulcer present either in the duodenum or stomach or in both organs

Treatment—The seven asymptomatic patients received no specific therapy for ulcers Of the 10 patients who had acute hemorrhage, all were treated with an intensive program of blood replacement and with administration of antiulcer medicaments, such as aluminum hydroxide (Amphojel) and methantheline (Banthine) bromide In two of the patients with bleeding peptic ulcers (cases 16 and 17), subtotal gastric resections were performed when blood replacement failed to keep pace with blood loss In both patients, all incisions showed complete inability to heal, although the ulcers were eliminated and the hemorrhage was controlled by the operation

Three patients survived (cases 18, 19, and 30) Gastrointestinal bleeding was present in each case, but it subsided within 24 to 48 hours All three patients were treated with an intensive program of blood replacement Each of them received more than 3,000 cc of whole blood over a period of 24 to 36 hours Methantheline bromide and aluminum hydroxide were also given In the three cases in which abdominal pain or rigidity was the only symptom or sign of the presence of peptic ulceration (cases 6, 8, and 14), aluminum hydroxide and methantheline bromide were given without obvious benefit

TABLE 1—*Summary of Data on Twenty Cases of Curling's Ulcer*

Case No	Age Yr	Sex	% of Body Surface Burned: Total	% of Body Surface Burned: Third Degree Burn	Ulceration: Location	Ulceration: Type	Hemorrhage on Postburn Day	Cause of Death	Death on Postburn Day	Remarks
1*	23	M	45	[illegible]	Duodenum	Multiple	10	Hemorrhage	13	Cortisone given for first 3 days
2	20	M	45	36	Stomach	Multiple	48	Peritonitis	65	Incision and drainage of abdomen drainage of abscess after perforation
3	30	M	65	55	Duodenum	Multiple		Electrolyte imbalance	17	Sodium level rose to 170 mEq
4*	65	M	40	25	Duodenum and stomach	Multiple		Septicemia	6	Acute superficial ulcers
5	25	M	85	60	Duodenum and jejunum	Multiple		Septicemia	4	Corticotropin therapy
6	17	M	70	60	*Duodenum*			*Septicemia*	30	*Rigid abdomen*
7	27	M	80	70	Duodenum	Penetrating		Unknown	8	Never regained consciousness
8	[illegible]	M	30	20	Duodenum and stomach			Septicemia	102	Perforation and abscess formation
9	36	M	58	[illegible]	Unknown		7	Hemorrhage	7	No autopsy also had septicemia
10	55	F	60	40	Duodenum			Septicemia	20	Ulceration found at autopsy
11	34	F	82	44	Duodenum and stomach	Multiple	5	Septicemia	9	Focal abscesses found at autopsy
12	34	M	90	[illegible]	Duodenum		2	Undetermined	9	Nonprotein nitrogen level rose to 280 mg /100 cc
13	[illegible]	M	99	90	*Duodenum*			Septicemia	0	*Early acute ulceration*
14	32	M	51	35	Duodenum			Septicemia	21	Penetrating ulcer with pancreatic abscess formation
15	17	F	82	20	Stomach	Multiple		Septicemia	18	Ulceration found at autopsy
16	18	M	39	31	Stomach		43	Septicemia	52	Gastrectomy breakdown of anastomosis and evisceration
17	24	M	72	20	Duodenum		19	Peritonitis	30	Gastrectomy poor healing with disruption of incisions
18	37	M	23	17	Unknown		16			Open fracture of T 12 with paralysis given 3 000 cc of blood
19	22	M	35	15	Unknown		12			Given 3 000 cc of blood in 12 hr septicemia
20	21	M	72	43	Unknown		23			Given 3 500 cc of blood in 24 hr septicemia
Averages			61	42			18 5		23	

* Cases previously reported by Weigel and co workers[1]

Causes of Death—In only four patients was the gastrointestinal ulceration considered the immediate cause of death The patients in cases 1 and 11 died from hemorrhage and the patients in cases 2 and 14 from peritonitis after perforation In the other 15 cases, the patients either survived or died from other causes Septicemia was present in 13 patients, and in 10 it was considered to be the primary cause of death

Clinical Studies

There are numerous theories as to the cause of gastrointestinal ulceration after cutaneous burns These theories were reviewed extensively in 1938 by Harkins[4] and in 1950 by Friesen[5] The most commonly proposed theories are that Curling s ulcer is related in some way to sepsis,[6] to hemoconcentration in the wall of the stomach and duodenum,[7] and to failure[2] or hyperactivity[7] of the adrenal glands It has been demonstrated that there is an increased level of blood histamine present in burned animals,[8] but these experiments gave no evidence that the elevated levels of blood histamine played any role in the formation of Curling s ulcer In a small series of dogs, it was reported that gastric secretions and acidity increased after a burn[9]

Gray and co-workers[10] and other independent workers[11] noted that an accurate estimate of the peptic activity of the stomach could be obtained by analyzing the urine for the level of uropepsin, and they observed that the level of this enzyme was elevated in patients with duodenal ulcer, as opposed to normal individuals The same investigators also observed that the excretion of uropepsin was increased by adrenal and pituitary hyperactivity, "stress response,' and corticotropin and cortisone therapy Only Gray and co-workers[12] reported an instance of uropepsin studies performed on a burned patient These studies were performed on a patient with an undisclosed amount of second-degree burn who showed elevated levels of uropepsin at the end of the first postburn week No studies have been reported on the gastric contents of burned patients

It was decided to study a series of hospitalized patients with burns to determine whether the peptic activity or the level of gastric acidity varied with the extent of burn and also whether they were related in any way to the development of Curling s ulcer

Uropepsin Studies—Twenty-six moderately to severely burned patients were studied Serial analyses were performed for the levels of uropepsin and the gastric contents examined for the presence of acid and blood Eosinophil counts were also performed

Experimental Methods Urine was collected over a 24-hour period and placed under refrigeration until analysis The potential pepsin activity of the urine (uropepsinogen level) was measured by the method described by Bucher[13] The method used involved the following procedure an aliquot from a 24-hour collection of urine was acidified to convert pepsinogen to pepsin Pepsin activity was measured by the incubation of an aliquot of the diluted, acidified urine with a hemoglobin substrate at 37 5 C, pH 1 75 to 2 0, for 60 minutes The phenolic compounds released by the proteolysis of hemoglobin were measured by the Folin-Ciocalteau phenol reagent in the filtrate obtained after the undigested hemoglobin was precipitated by trichloroacetic acid A tube, containing the same reagents but to which trichloroacetic acid had been added to stop the reaction before incubation, was used to account for the nonprecipitable phenolic compounds normally present in urine The blue color formed by the Folin-Ciocalteau reaction was then measured at 540 mμ in a Coleman junior spectrophotometer and equated to a standard tyrosine solution

Pepsin activity was expressed in terms of the difference between the incubated and unincubated samples (blank) as milligrams of tyrosine released per milliliter of urine Replicate determinations on the same specimens of urine indicated that the method had a reproducibility in the order of 8% Serial dilution of the same specimen of urine indicated pepsin activity to have a linear correlation with urine concentration Bucher s average normal value was approximately 300 mg per 24 hours, with a range of 35 to 875 mg per 24 hours The five normal levels obtained in this laboratory averaged 200 mg of tyrosine per 24-hour urine volume

TABLE 2—*Levels of Uropepsin in Twenty-six Burned Patients Divided into Two Groups*

Case No	Age Yr	Sex	% of Body Surface Burned: Total	% of Body Surface Burned: Third Degree Burn	Uropepsin Mg /24 Hr	Uropepsin Mg /Ml	Gastric Acidity Degrees: Free	Gastric Acidity Degrees: Total
Group A*								
21	23	M	5	3	364	0 25	46	55
22	25	M	9	3	465	0 29	18	36
23	24	M	10	0	443	0 17		
24	30	M	15	0	873	0 27	50	62
25	26	M	20	8	838	0 31		
26	22	M	20	8	1 304	0 65	29	54
27	26	F	21	5	760	0 30	15	36
28	21	M	21	10	866	0 27		
29	20	M	22	7	504	0 37	0	10
30	27	M	22	10	1 026	0 44	45	53
31	22	M	25	0	824	0 41	6	8
32	23	M	25	10	741	0 29		
33†	77	F	30	10	77	0 18		
Group B								
34	23	M	35	20	1 100	0 66	55	62
35	18	M	40	17	1 700	0 83	48	64
36†	23	M	40	25	1 904	0 76	48	81
37	21	M	40	25	1 143	0 07 0 49§	24	38
38	18	M	45	5	1 162	0 51	49	90
39	23	M	45	15	2 855	0 80	21	32
40†	24	M	50	20	3 706	0 99	37	68
14†‡	32	M	55	40	1 330	0 64	24	41
10†‡	55	F	60	40	526	0 27	32	56
11†‡	37	F	82	64	1 295	1 37	38	63
41†	26	F	90	50	526	0 34	36	67
12†‡	34	M	90	55	458	0 38	30	84
13†‡	36	M	95	91	552	1 10	19	59

* Burns in group A include those covering 30% or less of the body surface burns in group B include those covering more than 30% of the body surface

† Patient died

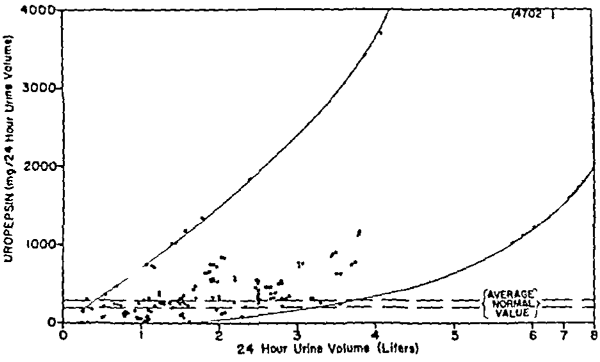
‡ Uropepsin level after the administration of cortisone

§ Patient had Curling s ulcer

Results of Uropepsin Studies Table 2 lists the highest uropepsin output for each patient studied, both in milligrams per 24 hours and in milligrams per milliliter The patients were divided into two groups, depending upon the percentage of total burn Group A consisted of patients with burns involving up to and including 30% of the total body surface, while group B included patients with burns involving more than 30% In the patients with the less severe burns (group

A), uropepsin excretion was at a normal or high-normal level unless some added systemic insult was present The patient in case 26 had septicemia and the patient in case 30 had a deep burn from white phosphorus These were the only two patients in the entire series who were emotionally disturbed enough to require psychiatric consultation

In the group with severe burns (group B), the level of uropepsin excretion was considerably elevated except in a few instances The patient in case 37 had an adrenal insufficiency When cortisone was given, the uropepsin level rose from 0 07 mg to 0 49 mg per milliliter The patient in case 10 was not admitted until 14 days after injury, hence the uropepsin levels prior to admission were unknown The patients in in cases 41 and 12 had renal impairment with rising levels of nonprotein nitrogen It was felt that the lack of elevation in the uropepsin levels in these two cases was due to diminished renal function rather than to failure of the gastric glands to secrete pepsin The level of uropepsin in a 24-hour urine specimen seemed related in some way to the volume of the specimen (see figure)



Graph showing relation of urinary volume to level of uropepsin in 30 burned patients

In patients with primarily second degree burns, uropepsin output seemed to reach a peak during the first and second postburn weeks These levels usually returned to normal by the end of the third week, at which time the burn wounds had healed Patients with third-degree burns tended to have a greater output of uropepsin during their second, third, and fourth postburn weeks, when sloughing occurred in the third-degree wound and considerable infection was present In many of these patients there were elevated uropepsin levels for some time after grafting was performed

Results of Related Studies. Table 2 records the highest level of gastric acid for each patient There was a considerable variability in gastric acidity, although there was a trend toward consistently higher gastric acidities in the severely burned patients (table 2, group B) In all patients the gastric secretions were tested for the presence of blood A trace to a strongly positive reaction was found in all patients in whom a benzidine test was performed

Eosinophil counts generally remained low during the first postburn week, but they began to return to normal during the second and third postburn weeks in all patients studied, unless severe infection was present There seemed to be no consistent relationship between the eosinophil count and the excretion of uropepsin

Relation to Curlings Ulcer Five patients in group B (table 2) developed Curlings ulcer Two of these patients (cases 11 and 12) had the highest concentrations of uropepsin per milliliter, although only the patients in cases 11 and 14 had markedly elevated uropepsin levels per 24 hours As has been stated previously, the patient in case 10 was not admitted until 14 days after her injury, and her early levels of uropepsin were unknown The patient in case 12 had marked renal impairment that may have accounted for the low urinary pepsin level At times, all five patients had at least moderately elevated gastric acidity At other times, gastric analyses were within normal limits

Gastric Pepsin Studies—Since some investigators[14] have stated that they were in doubt concerning the relationship between uropepsin excretion and the actual level of gastric pepsin under conditions of stress and because of the fact that several severely burned patients in the previous study had rather low levels of uropepsin, it was decided to analyze the simultaneous levels of gastric pepsin and uropepsin in a second group of patients

Methods In the preliminary phases of this study, gastric pepsin level was measured by the method of Glass, Pugh, and Wolf[15] This procedure required a somewhat empirical dilution of 1 200 of filtered gastric juice before analysis in order to reduce the pepsin activity to a measurable range and to obviate the effect of a pepsin inhibitor However, marked differences in peptic activity were found, depending upon the dilution employed The greater the dilution of gastric juice, the greater the increase in pepsin activity when peptic activity is calculated on the basis of milliliters of original gastric juice This phenomenon is the result of a disruption of an enzyme-inhibitor complex by means of dilution

In many cases, it was apparent that a 1 200 dilution gave an inaccurate picture of the maximum peptic activity that could be obtained from the gastric specimen To circumvent this problem, it was decided to make a routine assay of each specimen of gastric juice, using a series of five dilutions With this method it was possible to express gastric pepsin activity as a function of the peak activity in the five diluted specimens Although this method of assay assumes constant inhibitor activity in gastric juice, it was considered the only feasible means of assessing gastric pepsin activity without additional chemical fractionation of the specimen

Results Ten patients were included in this study Nineteen simultaneous collections of uropepsin and gastric pepsin were made Urinary corticoids were measured in the same samples of urine upon which the determination of uropepsin was performed (table 3) Both the uropepsin values in milligrams per 12-hour collection period and the concentration of uropepsin are listed and compared with the milligrams per 12-hour gastric collection and the concentration in the gastric contents collected

It has been stated that 1% of the pepsin formed in the gastric glands is secreted in the urine and 99% n the gastric contents [11a] In this series of studies, he relationship between gastric and urinary pepsin alues in 12-hour specimens is much less apparent han that between the concentrations of gastric pepsin and of uropepsin in milligrams per milliliter Variaion between 12-hour urinary and gastric specimens nay well be due to the inability of the gastric suction ube to collect the same percentage of gastric secreions on every occasion The concentration of uropepsin (milligrams per milliliter) in all but one nstance (case 44, table 3) was almost exactly 1% of the concentration of gastric pepsin

It was found at autopsy that one patient in this group (case 15) had Curling's ulcer Studies showed irly high levels of uropepsin per 12-hour period and lso elevated gastric pepsin levels during the same nterval There was a marked increase in the levels of gastric pepsin and urinary pepsin, in gastric acidity, and in excretion of urinary corticoids over the period from the 6th to 13th postburn days During this time, sepsis had increased in the patient This patient had the highest level of urinary corticoid excretion in the entire group

Porter and Silber s method was employed to determine the levels of 11-oxycorticoids present in the urine [16] *In general, the levels of urinary corticoid* excretion corresponded to the total uropepsin output, corticoid excretion was normal with normal levels of uropepsin and elevated when the uropepsin excretion was above average

Comment

Although the over-all incidence of Curling s ulcer among 1,000 burned patients was only 2%, it was a frequent complication among the more severely burned patients From the studies performed, it appeared that the more severely burned patients, that is, those with more than 35% of the body surface burned, and those having smaller burns with added injury or complications had elevated uropepsin excretion and a trend toward higher gastric acidity The levels of uropepsin in these patients seem to be related in some way to renal volume Extensively burned patients with terminal renal failure excreted smaller volumes of uropepsin Burned patients with large urine volumes excreted high levels of uropepsin Generally, the more severely burned patients received more fluid therapy and had higher urinary volumes It must be noted, however, that the concentration of uropepsin per milliliter was higher in the more extensively burned patients

Although the levels of uropepsin and the gastric acidity were elevated in severely burned patients, the levels were of no diagnostic value in determining which patients would develop Curling's ulcer The five patients who developed gastrointestinal ulceration after burns had elevated gastric acidity and elevated excretion of uropepsin, except one patient in whom renal failure was present and another in whom the levels of uropepsin were unknown for the first two postburn weeks Other patients failed to develop Curling s ulcer although they also had high levels of uropepsin and elevated gastric acidity

Diagnosis of gastrointestinal ulceration after burns was not made before the patients developed acute gastrointestinal hemorrhage or had marked epigastric pain Perhaps other patients would have revealed abdominal symptoms had they been more carefully questioned Minor complaints of this nature are often overlooked while attention is given to caring for the more obvious needs of a severely burned patient

Prophylactic treatment of all severely burned patients with aluminum hydroxide or a similar drug is recommended The use of methantheline bromide should be reserved for the onset of symptoms suggestive of gastrointestinal ulceration If hemorrhage occurs, the patient should be treated judiciously with the administration of blood, methantheline bromide, and antacids Gastrectomy should not be considered unless the magnitude of the hemorrhage is so great

TABLE 3 —*Levels of Gastric Pepsin and Uropepsin Obtained Simultaneously in Ten Patients With Burns*

			% of Body Surface Burned			Uropepsin		Gastric Pepsin			
Case No	Age Yr	Sex	Total	Third Degree Burn	Postburn Day Tested	Mg /Ml	Mg /12 Hr	Mg /Ml	Mg /12 Hr	% of Gastric Pepsin Excreted as Uropepsin	11 Oxy corticoids Mg /24 Hr *
42	39	M	18	5	3	0 45	376	44 2	26 400	1 01	8 2
43	21	M	25	10	4	0 49	274	41 7	13 360	1 17	7 4
44†	49	M	27	10	5	0 39	673	12 0	2 160	3.25	11 0
45	18	M	35	10	3	0 28	95	14 5	2 736	1 93	4 2
					10	0 17	244	17 0	18 940	1 00	5 2
					17	0 25	73	20 4	5 406	1 20	3 8
					31	0 24	290	25 28	2 528	0 94	11 0
46	32	M	87	8	7	0 25	383	19 9	796	1 25	9 9
47	18	M	48	18	26	0 29	210	39 0	11 310	0 74	4 3
					38	0 61	261	51 0	11 766	1 00	3 2
					45	0 14	81	11 2	1 010	1 25	2 5
					52	0 29	116	35 7	24 647	0 81	4 7
48†	18	M	52	25	4	0 24	160	15 9	19 116	1 50	
					18	0 27	274	23 6	42 079	1 14	9 6
49†	31	M	70	48	4	0 37	255	37 9	14 398	0 97	7 1
					11	0 22	361	11 7	584	1 88	7 1
15†‡	17	F	82	20	6	0 36	41	36 8	11 976	0 98	2 8
					13	0 42	420	51 8	39 901	0 81	21 8
50†	21	M	87	72	3	0 39	204	41 0	15 059	0 95	

* Normal 2 5-6 0 mg per 24 hr
† Patient died
‡ Curling s ulcer

that operation is mandatory as a lifesaving procedure In this series, the two patients upon whom gastric resection was performed died There was complete failure of all incisions to heal Both of these patients were extensively burned In each instance, local and systemic infection was present, and the patient's blood metabolites were depleted The cause of the failure of incisions to heal has not been determined However, this emphasizes the importance of conservative treatment in the management of a patient with a bleeding Curling's ulcer

Should operation be necessary because of the occurrence of uncontrollable hemorrhage, it appears that the procedure of choice would be exteriorization of the stomach, with duodenostomy and a jejunostomy and insertion of a catheter for feeding purposes This type of operation might eliminate the complications that follow leakage from sites of anastomosis

Summary

Of 1 000 burned patients admitted to Brooke Army Hospital over a period of six and one-half years, 20 developed Curling's ulcer Of the 80 burned patients who died during this period, 17 (21%) had gastrointestinal ulceration Three patients with gastrointestinal ulceration survived Seven patients were asymptomatic Hemorrhage occurred in 10 instances, and three patients had abdominal pain The majority of the ulcers occurred in the duodenum In only seven instances were the ulcerations multiple Eighteen patients were treated medically Three of these survived Two patients had subtotal gastrectomy, and both died In only four instances was the ulceration thought to be the immediate cause of death

Of 26 burned patients studied for levels of uropepsin and gastric acidity, uropepsin levels were elevated in almost every patient with 35% or more of the body surface burned Gastric acidity was extremely variable but tended to be higher in the more severely burned patients Elevated uropepsin levels and gastric acidity were of no diagnostic value in predicting which patients would develop Curling's ulcer The uropepsin concentration was approximately 1% of the gastric pepsin concentration, when the two were tested simultaneously

It is suggested that extensively burned patients be given antacids prophylactically Conservative medical management is recommended for patients with bleeding Curling's ulcer unless operation is absolutely necessary as a lifesaving procedure

Capt Bernard Balikov, M S C, was responsible for the early phases of the laboratory analysis Sp3 Donald F Solometo and Pvt John Monco gave technical assistance

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Renewal of Cells —Mitotic figures are often present in adult tissues Undoubtedly, some of this mitotic activity accounts for the slight tissue growth which exists in the adult phase of life However, in a number of locations, the frequency of mitosis greatly exceeds that required for growth Some of the areas of proliferation are easily accounted for, for example, the mitosis in the hair follicle assure the continued elongation of the hair shaft Similarly, the periodic outbursts of mitosis occurring in the ovarian follicles testify to their periodic development In both of these instances there is a structural addition to the tissue, that is, longer hair and new follicles In other cases, however, the tissue in which mitosis takes place shows no change in the number or size of its component structure, and, therefore, the cell production must be balanced by a cell loss In such an instance, the cells of the tissue are said to undergo 'renewal"—C P Leblond and B E Walker, Renewal of Cell Populations, *Physiological Reviews*, April, 1956

SURGICAL CONSIDERATIONS IN TREATMENT OF ESOPHAGEAL HIATAL HERNIA

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• *Operations to correct esophageal hiatal hernia were done in 113 patients Symptoms ascribed to it were present before operation in 78% of the patients, and there had been gastrointestinal bleeding in 19% The hernia proved to be of the sliding type in 97 patients and of the paraesophageal (rolling) type in 16 Surgical repair can be done from either a thoracic or an abdominal approach The latter was used in 57% of the cases and has the advantage that it may lead to the recognition and correction of intra abdominal disease Relief of symptoms was accomplished in most patients The observed recurrence rate of 10% or more was such as to discourage attempts to repair small, asymptomatic esophageal hiatal hernias*

Endeavors to repair hernias through the esophageal hiatus extend far back into surgical history Certain landmarks are recognizable along the way, noteworthy being the concepts developed and practiced by Harrington [1] and the technique introduced by Allison [2] In spite of accumulating experience, confusion still exists concerning indications for operation, operative techniques, and results of surgical treatment

Detailed analysis of indications for operation is beyond the scope of this study, which was undertaken to evaluate objectively an experience with esophageal hiatal hernias on two surgical services at the Mayo Clinic from 1952 through 1955 Particular attention was paid to operative techniques and results of surgical intervention

Present Study

A total of 113 patients were operated on for esophageal hiatal hernias on these two services in the four-year period This series included 54 men and 59 women Their ages ranged from 25 to 79 years, with an average age of 51 years

Symptoms and Signs —Before operation, 78% of the patients had experienced symptoms attributable to the hiatal hernia The commonest complaint was substernal burning distress, while dysphagia or regurgitation was noted by about a third of the patients Gastrointestinal bleeding had been present in 19% of the patients

Roentgenoscopic and roentgenographic studies were done on all patients, the hernia was demonstrated by this method in all but one Preoperative esophagoscopic studies were done on 80 of the 113 patients, esophagitis with or without ulceration was noted in 44% of the patients thus examined

Type of Esophageal Hiatal Hernia —A useful classification categorizes diaphragmatic hernias according to four anatomic locations (see table) This study is concerned only with hernias through the esophageal hiatus Since esophageal hiatal hernias with significant esophageal shortening have not been treated by simple repair at the clinic, such cases are not included in this series A total of 97 hernias were of the sliding type, and 16 (14%) were of the paraesophageal type

Classification of Diaphragmatic Hernias

- Hernias through esophageal hiatus
    - Esophagogastric junction in normal position (paraesophageal type)
    - Elevation of esophagogastric junction (sliding type)
        - Esophagus nearly normal in length
        - Esophagus short
- Hernias through foramen of Morgagni
- Hernias through foramen of Bochdalek (hiatus pleuroperitonealis)
- Hernias through dome of diaphragm

Anatomic Considerations

The esophageal hiatus in most instances lies within the right (muscular) crus of the diaphragm,[3] the fibers of which split to encircle the esophagus, forming a sling that is attached by tendinous bands to the lumbar vertebrae The actual attachment of the esophagus to the diaphragm is ligamentous The lining of the abdominal parietes, the transversalis fascia, is reflected over the undersurface of the diaphragm as the diaphragmatic fascia and ascends through the muscular hiatus to insert about the entire circumference of the thoracic portion of the esophagus 2 to 3 cm above the esophagogastric junction The fascia passing from the diaphragm to the esophagus is known as the phrenoesophageal (diaphragmaticoesophageal) membrane

The peritoneum is intimately attached to the body of the stomach, except at its curvatures, but is separated from the esophagogastric junction by fatty tissue and becomes loose anteriorly During abdominal exploration, the surgeon may invaginate the lax peritoneum through the hiatus, but the intact phrenoesophageal ligament limits this maneuver in the normal person

The basic structural defects are somewhat different in sliding and in paraesophageal varieties of hernia At least three defects are present in the sliding variety, namely (1) a redundant peritoneal sac that ascends through the hiatus on the anterolateral aspect of the upper part of the stomach and the lower part of the esophagus, (2) a phrenoesophageal ligament that is stretched chiefly in its anterolateral aspect, and (3) distortion of the muscular collar of the hiatus, mostly

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Read before the Section on Surgery, General and Abdominal, at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956 in the posterior and inferior aspects These defects allow the esophagogastric junction to ascend and cause the esophagus to be displaced posteriorly, destroying the anterior inclination of the lower part of the esophagus

The defects in the paraesophageal variety are at least two in number, namely (1) a redundant peritoneal sac and (2) distortion of the muscular collar as just described *The phrenoesophageal membrane is* functionally competent and the esophagogastric junction is at its normal position

Surgical Repair

An abdominal approach was used in 57% of the cases in this series, whereas the repair in 36% was accomplished through a transthoracic approach In a few cases, under special circumstances, a left thoracoabdominal incision was used

Two important facts must be emphasized as being related to the surgical approach for repair of esophageal hiatal hernia In the first place, the identical repair can be effected working either above or below the diaphragm Secondly, certain patients with esophageal hiatal hernias have associated pathological changes in the abdomen for which operation is likewise advisable Other abdominal surgical procedures were deemed necessary at the time of repair of the hiatal hernia in 40 cases, or 35% of the entire group A cholecystectomy was performed in 27 cases, a partial gastrectomy in 10 cases, an excision of gastric ulcer and gastroenterostomy in one case, a total gastrectomy in one case, and a pyloromyotomy in one case

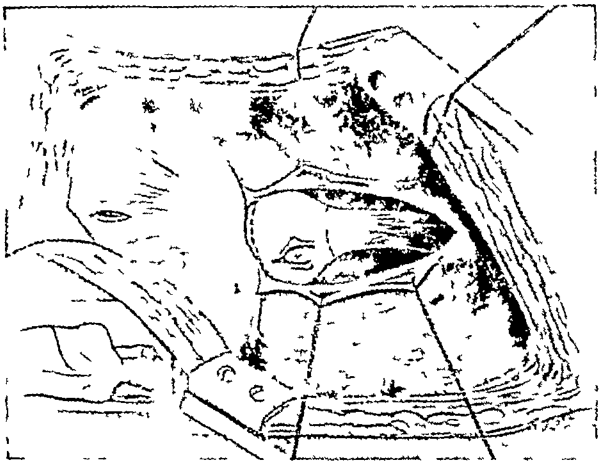

Fig 1 —Esophageal hiatal hernia as seen through thoracotomy incision Note that phrenoesophageal ligament covers herniated portion of stomach Segment between dotted lines represents amount of phrenoesophageal ligament that may be excised

A further consideration is that symptoms such as substernal pain or massive gastrointestinal hemorrhage may or may not originate in the demonstrated esophageal hiatal hernia in a given patient It is reassuring, in such instances, to be in a position to manage an unexpectedly encountered duodenal ulcer, for example

A reasonable plan, employed in this series, is to select the method of approach on the basis of conditions pertaining to the individual patient A transthoracic approach is indicated for patients in whom exposure of the esophageal hiatus may be unusuall difficult by the abdominal approach, such as obes persons or men in whom the thorax is deep Also, th transthoracic approach appears preferable when concern exists about the length of the esophagus, as in patient with secondary ulcerative esophagitis Operation is done, preferably by the abdominal route, o patients with known coexisting upper abdomina disease for which operation appears indicated, th obviates a second operation Patients whose symptom might be the result of unsuspected abdominal lesion primarily those who have bleeding as the presentin complaint, are best operated on through the abdomen

Surgical Technique—The repair of esophagea hiatal hernia is directed toward correction of the defects already enumerated This might entail (1) incision of the attenuated portion of the phrenoesophageal ligament and suture of the esophageal portion t the cut edge of the diaphragmatic fascia and (2 reapproximation of the two limbs of the right cru behind the esophagus Harrington [1] pointed out tha these are sliding hernias, inasmuch as a part of th sac consists of the wall of a viscus As in the repa of sliding hernias in other locations, management o the peritoneal sac does not play a significant role i the repair

Repair by Thoracic Route In *repair by the thoracic route*, a posterolateral incision is made and th left hemithorax is entered through the eighth interspace The mediastinal pleura is incised over the lowe portion of the esophagus, this incision being carrie down to the diaphragm The pleura is reflected off th superior aspect of the left limb of the right crus of th diaphragm so that this is clearly seen The right liml of the right crus is seen passing forward to the centra tendon of the diaphragm it lies deep to the herniate portion of the stomach in this exposure The bar lower part of the esophagus is clearly seen and i mobilized, along with both vagus nerves A tape i passed around it The herniated portion of stomac and peritoneum is seen to be invested by attenuate phrenoesophageal ligament (fig 1), which is attache to the lower part of the esophagus

A short (2-cm) incision is made in the diaphragm this is not located in the thin dome but is placed in th *peripheral muscular portion The surgeon passes* tw fingers through this incision and up into the peritonea sac With these fingers as a guide, the phrenoesophageal ligament is cleanly incised, with a fringe lef attached to the muscular hiatus for later placemen of sutures The peritoneal sac is then opened widel and its attachments liberated sufficiently so that th hernia is easily reduced The tape previously place around the lower portion of the esophagus is passe into the abdomen through the hiatus and then retrieved through the stab wound in the periphery o the diaphragm Traction on this tape maintains reduction of the hernia and keeps the esophagogastri junction well below the diaphragm during repair

Interrupted 00 silk sutures are placed to approximate the two limbs of the right crus of the diaphragn behind the esophagus (fig 2) Two to four stitche usually suffice to narrow the hiatus until the index finger can just be inserted into it beside the esophagus. In some cases in this series, the remnant of phrenoesophageal membrane on the esophagus was sutured with interrupted 000 silk sutures to the fringe that was left continuing through the hiatus. This portion of the repair can be accomplished accurately at times, but at other times it leaves something to be desired. The tape is removed and the small incision in the periphery of the diaphragm is closed with 000 silk sutures. The mediastinal pleura is loosely closed over the operative site. The thoracic wall is closed in layers. A catheter is left for temporary closed intercostal drainage.

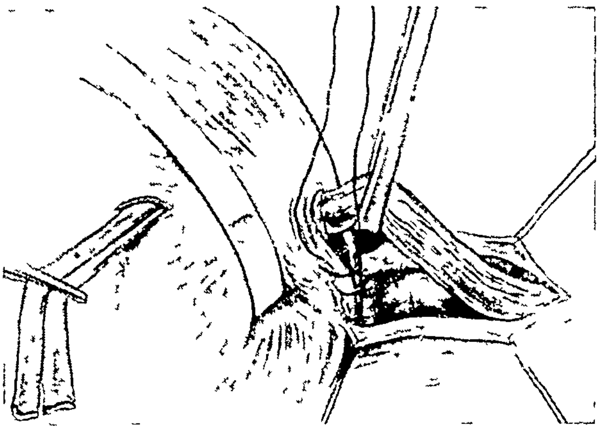

Fig 2.—Approximation of two limbs of right crus behind esophagus. (Hernia has been reduced.) Stitches have been placed for reconstruction of phrenoesophageal ligament.

Repair by Abdominal Route. In repair by the abdominal route, an upper midline abdominal incision often allows good exposure for the repair. A slightly arched transverse or straight transverse upper abdominal incision is preferable at times in patients with wide costal arches (fig 3).

The esophageal hiatus is exposed by incising the triangular ligament so that the left lobe of the liver can be mobilized and retracted to the right. Although some techniques require mobilization of the spleen, this is an unnecessary maneuver. The anterior wall of the stomach is grasped, and traction applied to it reduces the hernia. The loose peritoneum over the esophagogastric junction is incised, and the redundant peritoneum of the sac is pulled down from the mediastinum and excised. From the abdominal side, the phrenoesophageal membrane may not be seen as clearly at this stage as it is during operation through the thoracic approach. A tape is placed around the lower part of the esophagus, and traction on it maintains the reduction (fig 3). The two limbs of the right crus of the diaphragm then can be seen behind the esophagus as this structure is retracted forward by the surgeon's hand.

Repair is accomplished by suturing together the two limbs of the right crus behind the esophagus, exactly as described for repair by the transthoracic route (fig 3). Portions of the phrenoesophageal ligament still attached to the esophagus have then been sutured to the diaphragmatic fascia and to the peritoneum around the hiatus in some cases.

Results

As already indicated, 113 patients were operated on. One postoperative death occurred. This was in a patient in whom repair was accomplished by the transthoracic route. Death took place on the 33rd postoperative day as the result of pseudomembranous ileocolitis. The average stay in the hospital was 10.6 days in those operated on with the transthoracic approach and 10.2 days in those operated on with the abdominal approach. The incidence of nonfatal complications, such as thrombophlebitis, was not noticeably different in the two groups.

Relief of symptoms has been accomplished in most patients. Follow-up information is available on 68 of the 88 patients who had symptoms referable to the hiatal hernia. In 62 cases (91.2%) there had been complete relief, in 3 cases (4.4%) partial relief, and in 3 cases (4.4%) no relief of symptoms. The data indicate that more than 90% of that group had symptomatic relief after operation.

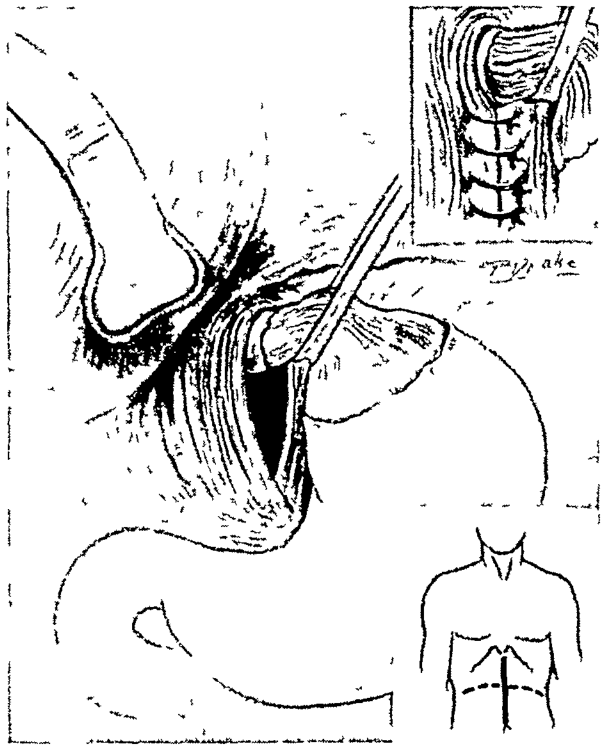

Fig 3.—Exposure of esophageal hiatal hernia through abdominal approach. Note clear exposure of two limbs of right crus behind esophagus. Lower insert shows usual incisions, midline or transverse. Upper insert shows repair by the Allison technique. Note that anatomic repair is similar to that obtained when repair is made from above diaphragm.

Unfortunately, of the 113 patients, only 48 had postoperative roentgenologic examination of the esophagus and stomach, and in some instances this was relatively soon after operation. Evidence of recurrence was noted in 5 (10%) of these 48 patients. These five included the three patients who did not experience any symptomatic relief from the operative procedure In view of the relatively short period between operation and examination in some cases, it is clear that this is a minimal figure for recurrence and that longer follow-up may show it to be somewhat higher

Comment

Two points appear worthy of emphasis First, satisfactory repair of esophageal hiatal hernia by the Allison [2] technique unquestionably can be accomplished by either the abdominal or thoracic approach Therefore, other factors, as already discussed, should determine the approach to be employed in a given patient

Secondly, evidence is clear that recurrence may take place after repair of an esophageal hiatal hernia The incidence of such recurrence reported in the literature varies from 3 to 50% [4] As already emphasized, the recurrence rate of 10% in our series is certainly minimal and may increase as these patients are followed up for longer periods Such a recurrence rate must stimulate continuing study of the technical problems of repair Knowledge of this recurrence rate also must temper the surgeon's enthusiasm for the repair of small asymptomatic esophageal hiatal hernias

Summary

A study has been made of 113 patients on whom operations were done for esophageal hiatal hernias in a four-year period at the Mayo Clinic Preoperative symptoms attributable to the hernias had been present in 78% of these patients The lesion was demonstrable by roentgenologic methods in all but one of the 113 patients

An abdominal approach was used for the surgical repair in 57% of the patients, whereas a transthoracic incision was utilized in 36% A left thoracoabdominal approach was used in a few patients An abdominal approach is advisable if any possibility exists of associated abdominal disease that may require surgical correction

Postoperative symptomatic relief was experienced by more than 90% of those who had preoperative symptoms One death occurred after operation, this resulted from pseudomembranous ileocolitis The recurrence rate relatively early in the postoperative course was 10%, indicating that this rate might be greater after longer follow-up

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PRIMARY MILIARY TUBERCULOSIS OF THE LIVER

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• *Primary miliary tuberculosis of the liver was found in 12 cases under conditions showing that it is not rare but is easily overlooked as a possible cause of obscure illness The symptoms found in all these case histories included fever, lassitude, weakness, anorexia, weight loss, chills, and drenching sweats Reaction to the Mantoux test was positive in all No cases of jaundice were seen Hepatomegaly, splenomegaly, ascites, alcoholism, and exposure to tuberculosis are clues to the diagnosis Needle biopsy of the liver is valuable but need not be done immediately in very weak patients, since recognizable tubercles remain in the liver for weeks after successful therapy has started Isoniazid and amino salicylic acid are now given to every patient, with streptomycin and steroids if necessary The response in the cases here described was remarkably good, and sometimes dramatic All of the eight patients whose treatment was considered adequate recovered without sequelae*

Miliary tuberculosis of the liver tends to be disregarded as a cause of obscure illness, pyrexia, or hepatomegaly This disregard presumably stems from the past, when such a diagnosis was an empty clinical triumph The physician could establish it only by laparotomy, a hazardous procedure in patients with such conditions, and, having made the diagnosis, he remained therapeutically impotent Nevertheless the concept of tuberculosis chiefly confined to the liver was recognized and, after the first description by Bristowe in 1858,[1] there were scattered contributions to the subject [2] In recent years there has been a radical change in the situation The demonstration of tubercles in the liver has become a relatively safe and simple matter with the advent of modern liver biopsy techniques,[3] and treatment of this condition with the new antituberculosis agents is remarkably efficacious

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Experience indicates, however, that the old attitude has not as yet been changed by the new situation One reason for this may well be that isolated hepatic tuberculosis was, and still is, considered to be rare, another is simply that attitudes are slow to change The purpose of this paper is, therefore, to report 12 cases of miliary tuberculosis chiefly confined to the liver that were encountered by us over a period of four years and to outline the clinical picture and the management of such cases

Definition and Nomenclature

The term "primary miliary tuberculosis of the liver' is used in this paper to indicate a condition in which there is hematogenous dissemination of tuberculosis to the liver, with minimal involvement of other organs In particular, no cases have been included in which there was radiologic evidence of pulmonary tuberculosis, miliary or other, except late in the disease when the infection often becomes generally disseminated Specifically excluded by this definition is the incidental involvement of the liver so common in pulmonary tuberculosis and in generalized miliary tuberculosis

Liver Profiles and Other Laboratory Data in Twelve Cases of Primary Miliary Tuberculosis of the Liver

Case No	Age Yr	Sex	Race	Alcoholic	Icteric Index Units	Alkaline Phosphatase Bodansky Units	Serum Albumin Gm /100 Cc	Serum Globulin Gm /100 Cc	Cephalin Flocculation	Thymol Turbidity Units	Serum Gamma Globulin Gm /100 Cc	Total Serum Cholesterol Gm /100Cc	Hemoglobin %*	WBC/ Cu Mm	Result
1	62	M	W		20					2 0			51	2 400	Dead
2	35	F	W	Yes					0	2 4	1 40	228	90	5 100	Dead
3	56	M	N	Yes	5	8 6	2 4	4 3	4+	11 6	3 40	102	55	7 400	Dead
4	47	M	N	Yes	9	5 8			3+	10 0	2 24	2[illegible]8	83	4 350	Dead
5	33	M	N	Yes	7	4 0	4 4	3 9	3+	6 7	2 30	150	73	4 100	Alive
6	51	M	N	Yes	6	3 9	3 7	3 1	1+	4 1	1 26		63	5 000	Alive
7	27	F	N	Yes	6		3 5	3 7	1+	3 8	1 40		81	4 900	Alive
8	52	M	W		6	6 0	3 7	2 7	4+	17 7	1 82		95	6 100	Alive
9	32	F	N		6	5 3	5 1	3 7	3+	5 0	2 20	228	58	6 150	Alive
10	22	F	N		8	[illegible]	3 5	4 7	4+	9 0	3 40	102	48	9 200	Alive
11	17	M	N		6	2 9	4 0	2 4	0	2 8	1 18	88	80	3 600	Alive
12	29	M	N		8	2 8			0	0 8	1 20	133	67	6 100	Alive
Range	17-62				5 20	2 8 8 6	2 4 5 1	2 4-4 7	0-4+	0 8-17 7	1 18-3 40	88-228	48-95	2 400-9,200	

* Hemoglobin level determined by an Evelyn photoelectric cell 100%=15 5 gm of hemoglobin per 100 cc

Nomenclature is unsatisfactory at present, as indicated by the many different names that have been used in the past 'Primary tuberculosis of the liver" [2a] is inaccurate, because the condition is invariably secondary to tuberculosis elsewhere, usually in the regional nodes, and, for the present purpose, it is too inclusive, for it also covers massive tuberculous abscesses and tuberculomas, which form a separate group "Acute pylephlebogenous tuberculosis of the liver" [2b] is applicable to acute cases, which form only a part of the present series, and it ignores the possibility of the hepatic arterial route of infection "Conglomerate tuberculosis of the liver,' 'tuberculous cholangitis,' 'tubular tuberculosis of the liver, and "disseminated caseating tuberculosis of the liver' are pathological diagnoses, descriptive of the autopsy findings but not helpful to the clinician "Atypical tuberculosis of the liver" [4] suggests that there is a typical form, which is doubtful The cases described under the term "atypical abdominal tuberculosis' [5] have many of the features of the series under discussion, but there seems to be little reason to incriminate the whole abdomen or to suppose that there is a typical form of abdominal tuberculosis Tuberculous hepatitis' [6] is a neat term but has little other merit, and certainly there is scanty evidence of hepatitis 'Hepatic tuberculosis" is much too inclusive, as is 'hepatolienal tuberculosis' 'Tuberculous portal pyaemia" [7] is an attractive term, but it indicates abscess formation and infection via the portal vein, neither of which is correct in any given case 'Miliary tuberculosis of the liver' and 'acute miliary tuberculosis of the liver" both seem to require further qualification Thus, 'primary miliary tuberculosis of the liver is considered to describe the condition under discussion more accurately and with fewer disadvantages than other terms

Report of Cases

The 12 examples of primary miliary tuberculosis of the liver described here were encountered between May, 1951, and August, 1955 The patient in case 1 was seen at the Seamen's Hospital, London, the patient in case 2 at a private hospital in Chicago, and the rest of the patients at Cook County Hospital, Chicago The cases are presented according to the manner of diagnosis and management

Diagnosis Unsuspected During Life and Revealed at Autopsy

Case 1 —A 62-year-old white man entered the hospital on May 1, 1951 For three months he had had vague but increasing malaise, anorexia weight loss, and occasional diarrhea For three weeks there had been severe night sweats, and for 10 days there had been remittent fever, with temperatures reaching 104 F (40 C) with rigors Exposure to tuberculosis or to alcohol was not discussed When he entered the hospital the patient was wasted and acutely ill with a temperature of 102 F (38 9 C) and pulse of 120 per minute There were no signs in the chest The liver was enlarged to 7 5 cm below the costal margin with a firm nodular surface The spleen was enlarged to 2 0 cm below the costal margin Urinalysis showed a trace of albumin X-ray of the chest showed entirely normal lung fields The icteric index was 20 units The hemogram showed anemia and leukopenia (see table) Liver biopsy to establish the diagnosis of lymphoma or carcinomatosis was considered but rejected because the patient was so ill The possibility of tuberculosis was never considered The patient s condition steadily deteriorated, and he died six weeks after admission Autopsy revealed numerous large tubercles, measuring up to 20 mm in diameter, in the liver, and there were similar small tubercles in the spleen The retroperitoneal and mediastinal lymph nodes were enlarged and caseous One large celiac node was calcified The lungs were not involved by the miliary process Microscopic examination revealed tubercle bacilli in moderate numbers in the liver and nodes, there was much necrosis in the hepatic lesions with occasional giant cells but with little cellular reaction

Primary miliary tuberculosis of the liver, which spread ultimately to the spleen and regional nodes caused an illness of five months' duration that was fatal Nodular hepatomegaly was an outstanding clinical feature

CASE 2 —A 35 year-old white woman entered the hospital on Dec 21 1952 She had been drinking excessively for at least five years For three months she had been too weak to work For several weeks she had suffered from fever and shaking chills and epigastric pain and had noticed dark urine and pale stools Her father brother, and husband had all died of tuberculosis She was icteric and moderately obese Her temperature was 104 F (40 C) pulse 132 per minute, and respirations were 24 per minute The liver was palpable 13 cm below the costal margin and it was tender The spleen was not enlarged The urine contained moderate amounts of bile and urobilinogen The reaction to the Mantoux test was positive with 1 10,000 old tuberculin Repeated chest x-rays revealed entirely normal lung fields The liver profile showed icteric index 64 units alkaline phosphatase level 9 Bodansky units total serum protein level 8 gm per 100 cc cephalin flocculation, no precipitate thymol turbidity 6 7 units gamma globulin level, 1 70 gm per 100 cc and total serum cholesterol level 438 mg per 100 cc Hepatic tuberculosis was not among the many diagnoses considered After she spent four weeks with remittent fever with temperatures that frequently reached 104 5 F (40 3 C) an impatient intern prescribed injections of a penicillin-streptomycin compound after which the patient became afebrile and improved sufficiently to be discharged The significance of this response to therapy was overlooked, and she left the hospital on Feb 2 1953 without tuberculosis being considered On March 21 1953, she was readmitted in coma, and no further history was available Her temperature was 105 F (40 5 C) Her liver was now enlarged to only 5 cm below the costal margin A partial liver profile was negative (see table) She rallied briefly, but developed hemiplegia on the right and died 11 days after admission Autopsy revealed innumerable tubercles in the liver which was not cirrhotic There were also miliary tubercles in the lungs spleen and kidneys and three small tuberculomas in the brain

Primary miliary tuberculosis of the liver in a chronic alcoholic caused an illness of six months' duration that was fatal The condition was masked by inadequate and unintentional antituberculosis therapy There was terminal involvement of the lungs and meninges

Primary Miliary Tuberculosis of Liver Diagnosed During Life, but Too Late for Effective Therapy

CASE 3 —A 56-year-old Negro man entered the hospital on June 3 1952 with a history of six months of vague ill health lassitude poor appetite and loss of weight For one month he had experienced severe backaches pain in the upper part of the abdomen on the right epigastric discomfort fever and chills His family history was negative for tuberculosis He had consumed large amounts of alcohol for many years He was thin and acutely ill, with temperature 102 F (38 9 C) pulse 108 per minute, and respirations 20 per minute The liver was enlarged to 12 cm below the costal margin and to 12 cm below the xiphosternum The spleen was not palpable He had remittent fever with temperatures up to 102 F (38 9 C) each evening X-rays of the chest showed normal lung fields He felt much better after several days in bed and discharged himself against medical advice Repeated x-rays of the chest just before this discharge were again entirely normal He slowly grew weaker and reentered the hospital on Sept 22 1952 He was cachectic and obviously very ill His temperature was 102 F (38 9 C) and pulse 120 per minute Fine moist rales were heard throughout both lung fields The liver was enlarged to 15 0 cm below the right costal margin and to 17 5 cm below the xiphosternum It was tender and the surface was nodular X-ray of the chest revealed diffuse nodular opacities suggestive of miliary tuberculosis Three sputum specimens were negative for tubercle bacilli The liver profile was abnormal (see table) Hepatic tuberculosis was among the diagnoses considered but before any decision was made regarding therapy, the patient died on Oct 20, 1952 Autopsy revealed a huge liver with many large and small pale nodules These were initially considered to be lymphomatous, but microscopy revealed that they were tuberculous There were also miliary lesions of the lungs and spleen and the mesenteric para-aortic, and tracheobronchial lymph nodes

Primary miliary tuberculosis of the liver in a chronic alcoholic caused an illness of 10 months duration that was fatal Terminally the liver became grossly nodular and there was dissemination to the lungs

CASE 4 —A 47-year-old Negro man entered the hospital on June 29 1955, in a state of confusion with a vague history of at least six months of weakness More recently he had noticed a lump in his neck He had consumed 1 pt of whiskey a day for many years He was thin lethargic and irritable His temperature was 101 F (38 3 C), pulse 100 per minute, and respirations were 20 per minute The pupil of the right eye was smaller than that of the left Moderate neck rigidity was present A firm mobile, nontender lymph node, 3 cm in diameter, was felt behind the clavicular head of the left sternocleidomastoid muscle The abdomen was somewhat distended, in marked contrast to the general wasted appearance The liver and spleen were not felt X-ray of the chest was negative The liver profile was abnormal (see table) and was considered to indicate a diagnosis of Laennec s cirrhosis especially in view of the alcoholic history The cerebrospinal fluid, however, contained protein, 140 mg per 100 cc , glucose, 80 mg per 100 cc , and chlorides, 104 mEq per liter In view of this, the enlarged cervical node, and the anisocoria a diagnosis of disseminated tuberculosis was made Streptomycin, isoniazid (INAH), and aminosalicylic acid (PAS) were administered After slight improvement, the patient relapsed and died on the fourth day of treatment The autopsy revealed that the liver weighed 2,000 gm and contained innumerable tubercles varying from 1 0 mm to 1 5 cm in diameter Many tubercles were so solid and fleshy that the differentiation from lymphoma had to await histological examination It also showed tuberculosis of the portal, mesenteric para-aortic tracheobronchial and left supraclavicular lymph nodes and early meningeal tuberculosis There was no evidence of pulmonary tuberculosis

Primary miliary tuberculosis of the liver in a chronic alcoholic caused an illness of six months' duration that was fatal There was terminal spread to the meninges and regional nodes, but not to the lungs

Primary Miliary Tuberculosis of Liver Correctly Diagnosed and Needle Biopsy Performed After Therapy

CASE 5 —A 33-year-old Negro man entered the hospital on Aug 16, 1955 For four weeks he had been listless and his abdomen gradually had become swollen without any other symptoms A rigor occurred on the day of admission He had been drinking heavily on week ends for 10 years When he had been 2 years old a brother and a sister had died of pulmonary tuberculosis On admission to the hospital he showed no obvious loss of weight and looked remarkably well His temperature was 102 6 F (39 2 C) and pulse 100 per minute No enlarged lymph nodes were felt The abdomen was markedly distended, with shifting dulness in the bulging flanks X-ray of the chest showed normal lung fields X ray of the abdomen revealed several calcified shadows in the epigastric region which were interpreted as calcified lymph nodes The reaction to the Mantoux test was positive with 1 10 000 old tuberculin The liver profile was abnormal (see table) Paracentesis obtained 4 700 cc of straw-colored ascitic fluid with a protein content of 5 0 gm per 100 cc , a protein content of 6 2 gm per 100 cc was obtained in a second paracentesis After paracentesis, the liver was found to be enlarged to 7 5 cm and the spleen to 2 0 cm below the costal margin A clinical diagnosis of hepatic tuberculosis was made and isoniazid aminosalicylic acid and streptomycin were administered He became afebrile in five days Five weeks later the ascites had cleared and a liver biopsy was performed It revealed a granulomatous hepatitis compatible with tuberculosis Two months after therapy was begun, the liver and spleen had become impalpable Recovery was complete and uneventful

Primary miliary tuberculosis of the liver in a chronic alcoholic led to fever and ascites Needle biopsy was contraindicated initially Antituberculosis therapy was therefore given and diagnostic liver biopsy performed when sufficient improvement had occurred The clinical diagnosis was confirmed by the liver biopsy 37 days after the onset of effective therapy

Case 6 —A 51-year-old Negro man entered the hospital on March 28, 1953 For one week he had experienced drenching sweats and feverishness every evening and also frontal headache cramping upper abdominal pain, and loose stools Family history was negative for tuberculosis He had consumed excessive amounts of alcohol for many years When he entered the hospital, he was emaciated and extremely ill his temperature was 103 F (39 4 C), and his pulse was 88 per minute The abdomen was distended there was tympanites without evidence of ascites The liver was enlarged to 7 cm below the right costal margin The spleen was not enlarged X-ray of the chest showed entirely normal lung fields X-ray of the abdomen revealed a calcified density just to the right of the first lumbar vertebra that was interpreted as a calcified abdominal lymph node Reaction to the Mantoux test was positive with 1 1 000 old tuberculin The liver profile was not remarkable (see table) On April 24 a clinical diagnosis of hepatic tuberculosis was made The patient was judged to be too ill for liver biopsy and treatment was commenced with streptomycin and isoniazid Within three days there was a dramatic improvement and he was afebrile within two weeks A liver biopsy performed after 25 days of treatment revealed miliary granulomas compatible with tuberculosis Recovery was uneventful and complete When the patient was admitted his white blood cell count was 5 000 per cubic millimeter, but this steadily decreased until it reached 800 per cubic millimeter By this time specific therapy had started and the count rapidly rose to reach 5 200 per cubic millimeter after six days of therapy This leukopenia was considered to result from involvement of the bone marrow

Primary miliary tuberculosis of the liver caused pyrexia and hepatomegaly It eventually spread to the bone marrow The diagnosis was confirmed by liver biopsy after 25 days of specific therapy

Case 7 —A 27-year-old Negro woman entered the hospital on May 29, 1953 For two weeks she had had malaise anorexia recurrent chills and a slight productive cough Three days before admission she had noticed submammary pain on the left that was worse on coughing or with deep breathing She then began to feel very much more ill the chills became more severe and she started to vomit There was no known exposure to tuberculosis She had overindulged in alcohol for many years and for at least 12 months had consumed not less than 1 pt of whiskey a day She was well developed well nourished, and appeared anxious and ill Her temperature was 103 F (39 4 C) and pulse 132 per minute There were no enlarged lymph nodes There was no pleural friction rub The liver was enlarged to 3 cm below the costal margin The spleen was not enlarged Urinalysis revealed 3+ urobilinogen The hemogram was not remarkable The liver profile showed some decrease of albumin and increase of globulin but was otherwise normal (see table) The reaction to the Mantoux test was positive with 1 1 000 old tuberculin Six x-rays of the chest, taken between May 29 and Aug 10 showed normal lung fields and no pleural effusion She was considered to have hepatic tuberculosis, but, as her condition was so poor, liver biopsy was postponed Streptomycin, 1 gm daily, and aminosalicylic acid 12 gm daily were administered Little response was obtained, on June 18 a node was found in the right axilla and the spleen was palpable 3 5 cm below the costal margin On June 24, therapy with isoniazid (but only 100 mg twice a day) was started, there was a rapid improvement and she became afebrile after two weeks A liver biopsy was performed four weeks after therapy had been started and revealed numerous active, though noncaseating tubercles Recovery was complete and uneventful

Primary miliary tuberculosis of the liver in a chronic alcoholic was confirmed by liver biopsy after four weeks of treatment Streptomycin alone was given initially, but was ineffective and recovery occurred only after the addition of isoniazid

Primary Miliary Tuberculosis of Liver Diagnosed Clinically and Confirmed by Needle Biopsy Before Therapy

Case 8 —A 52-year-old white man entered the hospital on Aug 21 1953 For one week he had had chills fever mental confusion and myalgia which had started suddenly He appeared remarkably well, except during and shortly after his frequent bouts of fever He had an intermittent fever, with temperatures up to 102 5 F (39 2 C) sometimes twice daily His pulse rate was 40 per minute (complete heart block following coronary thrombosis seven years previously) There were no localizing physical signs, but after one week a cervical lymph node enlarged and the liver and spleen became palpable X-ray of the chest was negative save for a small area of pneumonitis at the base of the left lung The hemogram showed no anemia The liver profile was abnormal (see table) Examination of the sternal marrow showed a toxic reaction Biopsy of the cervical lymph node revealed a small noncaseating, nonspecific granuloma The problem of the cause of this obscure fever was complicated by a history of amebic colitis and by the fact that a business partner of the patient had recently had brucellosis A five day course of streptomycin therapy produced no effect on the fever or on his condition subjectively or objectively, and was abandoned on the presumption that the illness was not tuberculous in origin Needle biopsy of the liver was performed on the 35th day of the patient's illness and revealed numerous caseating granulomas indicative of tuberculosis Treatment with isoniazid, aminosalicylic acid and streptomycin resulted in a dramatic improvement followed by complete recovery, with no relapse 30 months later

Primary miliary tuberculosis of the liver caused an obscure pyrexial illness Treatment with streptomycin alone for a trial period of five days was ineffective Liver biopsy, however, revealed the true diagnosis There was a rapid response to isoniazid

Case 9 —A 32-year old Negro woman entered the hospital on Oct 30 1953 In 1950, an enlarged lymph node had appeared on the left side of her neck a biopsy revealed tuberculosis The node gradually disappeared without treatment In May, 1952 a left cervical node enlarged biopsy was performed tuberculosis was demonstrated and it again disappeared without treatment In February 1953 a tender node appeared in the left axilla it did not disappear Following the delivery of her ninth child in September 1953, the patient began to have aching pains in the hips and calves on walking and gradually became more listless When she entered the hospital, she appeared moderately ill but with no obvious loss of weight Temperature was 101 F (38 2 C) and pulse 100 per minute Several enlarged nodes were present in the left axilla but not elsewhere The liver was just palpable and the spleen was enlarged to 2 cm below the costal margin X-rays of the chest on four occasions showed normal lung fields The liver profile was abnormal and she was anemic (see table) The reaction to the Mantoux test was positive with 1 10,000 old tuberculin and produced central necrosis Biopsy of the left axillary node revealed caseous tuberculosis Liver biopsy revealed numerous tubercles Treatment with isoniazid, aminosalicylic acid and streptomycin resulted in a rapid and complete recovery

Primary miliary tuberculosis of the liver was apparently precipitated by childbirth in this case There was also tuberculosis of an axillary lymph node

CASE 10 —A 22-year old Negro woman entered the hospital on July 22 1954, with a year's history of lumps on her shins that later ulcerated and persisted For six months she had had a poor appetite and she had lost 40 lb (18 1 kg) in weight One month before admission she had had her chest x-rayed at the Municipal Tuberculosis Sanitarium, with negative results An uncle and a brother had died of tuberculosis She was moderately emaciated, with a temperature of 102 F (38 9 C) and pulse 140 per minute The abdomen was distended The liver was enlarged to 4 cm below the costal margin, and the spleen to 3 cm Small scattered ulcers were present on her shins X-ray of the chest revealed a small pleural effusion on the left The hemogram showed marked anemia Her liver profile was abnormal (see table) Liver biopsy revealed numerous tubercles By the time that treatment was started with streptomycin 1 gm twice a day her temperature had reached 105 F (40 5 C) daily On the fourth day of therapy, she was afebrile Isoniazid and aminosalicylic acid were added to the regimen 10 days later and recovery was both rapid and uneventful

Primary miliary tuberculosis of the liver caused a severe febrile illness in a young woman who had a strong family history of tuberculosis and who developed erythema induratum at the onset Streptomycin alone produced a remarkable improvement within four days

CASE 11 —A 17 year old Negro man entered the hospital on May 22 1954 For seven days he had experienced a dull aching periumbilical pain that had started rather suddenly and then persisted His abdomen had gradually swelled over the same period He denied exposure to either tuberculosis or alcohol He was thin and moderately ill with a temperature of 101 5 F (38 6 C) and pulse 100 per minute The abdomen was distended, and there was evidence of ascites X-ray of the chest showed normal lung fields The reaction to the Mantoux test was positive with 1 100 old tuberculin The hemogram showed some leukopenia The liver profile was normal (see table) Paracentesis obtained 4 500 cc of straw-colored fluid with a specific gravity of 1,018, the protein content was not estimated For six weeks the temperature ranged to 102 F (38 9 C) daily and his condition steadily deteriorated Liver biopsy was then performed and revealed numerous caseating tubercles He was then placed on streptomycin therapy and rapidly improved He was transferred to the tuberculosis sanatorium

Primary miliary tuberculosis of the liver was complicated by ascites The diagnosis was eventually established by liver biopsy, and streptomycin alone resulted in rapid improvement

Primary Miliary Tuberculosis of Liver Suspected Clinically and Confirmed by Favorable Response to Therapy

CASE 12 —A 29 year-old Negro man entered the hospital on Feb 5, 1954 For two weeks he had suffered from recurrent attacks of severe griping epigastric pain These had been gradually easing but for 10 days he had noticed that his abdomen was swelling He had also had fever, with temperatures up to 102 F (38 9 C), night sweats anorexia, loss of weight and some diarrhea There was no history of exposure to tuberculosis or alcohol He was thin, pale, and appeared chronically ill His temperature was 98 F (36 7 C) and pulse 96 per minute The abdomen was moderately distended with central tympany and demonstrable ascites The liver was enlarged to 5 cm below the costal margin The spleen was not palpable X-ray of the chest showed normal lung fields The hemogram showed slight anemia, and the liver profile was normal (see table) A liver biopsy revealed a nonspecific granulomatous hepatitis, with numerous small follicles Treatment with isoniazid and streptomycin resulted in a rapid uneventful recovery, with disappearance of the ascites and the hepatomegaly This therapeutic result was accepted as proof of the tuberculous nature of the hepatic follicles

Primary miliary tuberculosis of the liver was suggested by the demonstration of nonspecific hepatic granulomas and confirmed by the rapid response to isoniazid and streptomycin

Clinical Aspects

The symptoms found in all these cases of primary miliary tuberculosis of the liver included histories of nonspecific, toxic, febrile lassitude, weakness, anorexia, weight loss, fever, chills or rigors, and drenching sweats Respiratory symptoms were conspicuous by their absence Jaundice was not an appreciable feature of the present series, although it undoubtedly does occur in hepatic tuberculosis, the initial jaundice of the patient in case 2 cleared without therapy and was considered to be primarily a toxic hepatitis affecting the fatty liver of an alcoholic Abdominal symptoms were common, ill-defined pain or discomfort in the epigastrium predominated In three patients, abdominal swelling was the presenting complaint Diarrhea was present in two cases, but was not troublesome in either

A family history of tuberculosis was only detected in three patients, but many of the other patients were vague about their relatives, and their negative histories are of dubious value More interesting, and possibly more significant, was the excessive consumption of alcohol admitted by six patients The prevalence of this factor was not initially recognized, and relevant inquiry was not always pursued

On physical examination, most of the patients were obviously seriously ill, and all but two had lost weight The patient in case 3, however, had been little incapacitated during the first five months of his illness, the patient in case 5 looked remarkably well with no obvious loss of weight, the patient in case 8 looked and felt comparatively normal, except when experiencing a rigor, and the patient in case 9 had lost no weight and seemed only moderately ill In the Negro patients, a common feature was the loss of the normal sheen of the skin, in many instances the skin looked as if it had been powdered, especially on the shins and forearms In striking contrast to the general thinness, the abdomen often appeared to be well nourished or 'full', closer examination, however, indicated that this fulness came from within, and that it was due, apparently, to hepatomegaly and probably some degree of ascites The liver was palpated in all but four instances, and was markedly enlarged in two The spleen was felt in seven patients, and was large in none In several, there was a hint of ascites and some gaseous distention, and in three there was frank ascites An enlarged lymph node was palpable in three patients

The reaction to the Mantoux test was positive in all cases in which it was done Roentgenography of the chest was negative in every case, at any rate until the later stages of the disorder X-ray studies of the abdomen showed what were presumed to be calcified lymph nodes in the upper abdomen in three cases

Hemograms were nonspecific, in general, there was a endency to anemia and leukopenia (see table) The able also shows that the liver profile often indicated changes in serum protein values No instances of jaundice were seen in this series The alkaline phosphatase evel was surprisingly low, even in the patients in cases 3 and 4, in whom there were large hepatic lesions (an interesting contrast to sarcoidosis) The serum gamma globulin level was elevated above 1 5 gm per 100 cc in six cases, and in these six the results of he flocculation tests were grossly abnormal The owest gamma globulin level was 1 18 gm per 100 cc (case 5)

Diagnosis

The following features in various combinations are judged to be reasons for considering the diagnosis of primary miliary tuberculosis of the liver (1) pyrexia of unknown origin, (2) hepatomegaly, not necessarily tender, (3) splenomegaly, (4) episodes of arthralgia, fever, or skin eruptions, (5) a "full" abdomen, contrasting with wasting elsewhere, (6) ascites with protein content above 4 gm per 100 cc, (7) unexplained moderate anemia and leukopenia, (8) unexplained elevation of the serum gamma globulin level, especially with abnormal flocculation tests, and (9) a positive reaction to the Mantoux test These findings assume more significance if the patient is a Negro, or if there has been unusual exposure to alcohol or to tuberculosis

Liver Biopsy—If it is impossible to exclude primary miliary tuberculosis of the liver as a diagnostic possibility, a liver biopsy is indicated This may be performed without delay if there are no contraindications It is, however, important to realize that it is not essential to perform liver biopsy before starting therapy, since recognizable tubercles remain in the liver for weeks after successful therapy has started, as in cases 5, 6, and 7 Therefore, if the patient is deemed too ill or there are other contraindications, specific therapy may be commenced without delay and liver biopsy performed when the patient has improved sufficiently, even two or three weeks later If the tubercles of tuberculosis are demonstrated in the biopsy, the diagnosis is made If the granulomas are nonspecific, they must be interpreted in the light of the clinical picture and of the response to antituberculosis therapy

We have used the modification of the Gillman instrument already described by one of us [8] for liver biopsy This instrument obtains larger specimens than the Vim-Silverman needle without added risk, and the specimens are in better condition than those obtained by the more complicated Iversen-Roholm technique [9] A specific advantage of this instrument in hepatic tuberculosis is that macroscopic examination of the biopsy specimen is facilitated, and the presence of tubercles in the specimen can be confirmed at the bedside by simple inspection, since they are brightly translucent [10]

There were no complications from liver biopsy in this series Indeed, considering that these patients are often seriously ill, liver biopsy seems to be a remarkably safe procedure in this condition

Treatment and Prognosis

Isoniazid and aminosalicylic acid are now given to every patient In more serious cases, streptomycin is also given, and, if the prognosis appears to be grave, steroid therapy is also instituted Our initial dosage for isoniazid is 6 to 10 mg per kilogram of body weight daily, depending on the severity of the case A typical schedule for the most severe case would be as follows isoniazid, 10 mg per kilogram daily until the patient is afebrile, then 6 mg per kilogram daily for three weeks, and finally 4 mg per kilogram daily until he is considered cured, which would never be less than six months, and usually closer to one year, aminosalicylic acid, 12 gm daily by mouth, throughout the course of treatment, and streptomycin, 2 gm daily until the patient is afebrile and then 1 gm daily for three weeks Pyridoxine, 50 mg twice a day, is given to alcoholics on isoniazid therapy and to all patients receiving the higher dosage of isoniazid, in order to prevent peripheral neuritis If cortisone acetate or corticotropin is used, its use is discontinued as soon as the clinical situation allows, in order to avoid complications such as hemorrhage or secondary infection, both of which we have seen in the steroid therapy of miliary tuberculosis

We are not qualified to discuss the duration of therapy We do, however, feel that one should not be misled by the impressive efficacy of therapy or by the absence of early relapse or recurrence Prolonged therapy and rigid follow-up must be practiced until more is learned of the prognosis of this condition

In our experience, response to therapy was remarkably good, and all eight adequately treated patients made a full and uneventful recovery (this excludes the patient in case 4, whose therapy started only four days before death) The patient's fever disappeared within three days in case 10, but usually a week was necessary, and occasionally a longer time Thus one should beware of interpreting the lack of response to a brief course of therapy as an indication of the nontuberculous nature of the illness (as was done in case 8) Rapid clinical improvement was the rule, except in case 7, where biopsy revealed considerable fatty infiltration of the liver in addition to the tuberculosis

Follow-up has not been attempted in the present group, partly because of the problems inherent in alcoholic subjects and partly because most of the patients were eventually referred to the local tuberculosis clinics The patient in case 8, however, was extremely fit 30 months after starting therapy

Comment

In primary miliary tuberculosis of the liver, the tuberculous process remains confined to the liver for a varying time, apart from lymph node involvement Thus, in case 1, the patient died before the lungs or other organs were affected, but there was terminal spread to the lungs and brain in case 2, to the lungs in case 3, and to the meninges in case 4 Before effective therapy was instituted, there was presumptive spread to the bone marrow in case 6 It seems probable that in the past many cases of primary miliary tuberculosis of the liver were regarded as examples of generalized hematogenous tuberculosis, since the diagnosis was usually not made until either miliary tuberculosis of the lungs had appeared or autopsy was performed, when other organs were usually involved Certainly the patients in cases 2, 3 4, and 6 could not have been included in this series had they first been seen after the extrahepatic spread had occurred Similarly we have excluded from this series an equal number of cases which we regard as instances of primary miliary tuberculosis of the liver but in which the patients had important extrahepatic foci when they were first seen

In the nonfatal cases, however, one cannot be certain that the miliary tuberculosis was confined to the liver, although it is true that there was no miliary involvement of the lungs or meninges Moreover, one cannot exclude occult foci such as genital tuberculosis in the female In that case, it may be asked why such emphasis is placed upon the hepatic involvement The answers are that, firstly, the hepatic infection is often the only one that can be suspected clinically, secondly, the hepatic involvement may be considered to be of major importance merely because of the massiveness of the tuberculous process within the liver, as contrasted with the paucity of findings elsewhere, and also because liver biopsy may show a dozen tubercles in a single section of a specimen measuring 20 mm long and 1 5 mm wide, thirdly, the liver is the only place where the tubercles may be easily demonstrated, and, fourthly, emphasis on the hepatic predominance in this syndrome has led to the diagnosis being considered and established at an early stage in the last seven cases that we have encountered

The incidence of primary miliary tuberculosis of the liver in our experience is much greater than a survey of the literature would indicate, even though Cook County Hospital is admittedly a large hospital, with some 3,200 beds One must, however, bear in mind that at least another dozen cases of a similar nature have been excluded from this series because the patients had important extrahepatic lesions when first seen, such as tuberculous meningitis, bilateral hilar lymphadenopathy, pleural effusions without lesions of the lung parenchyma, arthritis, tuberculosis of vertebra (Pott's disease), epididymitis, hypersplenism, and cecal ulceration

Etiology—There seems little doubt that primary miliary tuberculosis of the liver is a hematogenous condition of the liver, and therefore that the infection reaches the liver either by the portal vein or the hepatic artery In most cases, even at autopsy, it is difficult or impossible to decide which of these two routes was involved, although Warthin [2b] described a case in which a caseating lymph node was ulcerating into the portal vein The enlargement of the spleen in many cases necessitates some further explanation, as does the case described by Hickling,[11] in which there was miliary tuberculosis of the spleen without involvement of the liver Such cases make it necessary to consider the possibilities of a caseating node invading the hepatic artery, which would produce pure hepatic tuberculosis, or invading the splenic artery, which would cause primary involvement of the spleen, and perhaps later involvement of the liver via the splenic vein The presence of a caseous or calcified node in the para-aortic or portal area in several of our cases makes it probable that these were the disseminating foci, they in turn having risen either from a primary abdominal infection or, more likely, from an intestinal lesion secondary to a primary pulmonary infection

There was involvement of the abdominal and mediastinal lymph nodes in all four of the patients on whom an autopsy was performed, and there were enlarged external lymph nodes at some stage in the patients in cases 4, 7, 8, and 9 It seems reasonable to suppose that after the activation of the lymph node that has led to hematogenous dissemination to the liver there will be regional lymphatic spread, generally in a cephalad direction, to the para-aortic lymph nodes in the abdomen and thorax

Our group of cases shows some predilection of this condition for males (8 out of 12 cases) and alcoholics (6 out of 12) Amebic liver abscess shows a similar marked predilection for males, and it has frequently been suggested that masculine intemperance is the reason One is tempted to suggest that a similar process may be responsible for the sex distribution in our cases The fact that 9 of the 10 patients with this condition seen at Cook County Hospital were Negroes may also be significant, since less than 50% of the hospital population is Negro, the reason, however, for this racial predominance is probably a complex matter involving racial immunology, social conditions, exposure to tuberculosis, and other factors

Another possible etiological factor may be childbirth Thus, the patient in case 9 had had several inconsequential episodes of cervical lymphadenitis, but, after childbirth, she developed generalized symptoms and rapidly became extremely ill with primary miliary tuberculosis of the liver A similar case is reported by Solomon and Doran,[12] whose patient developed miliary tuberculosis of the liver and spleen after childbirth The spleen, weighing 1,240 gm, was removed at laparotomy, when the liver was also seen to be studded with tubercles, and the patient rapidly recovered

Treatment—Bunn [13] reported that 60% of his patients with miliary tuberculosis who were treated with streptomycin alone developed tuberculous meningitis, a complication that greatly increases the mortality rate, and Lawson and co-workers [14] found that tuberculous meningitis was a less common complication of miliary tuberculosis treated with isoniazid alone than with streptomycin alone The reason for this protective action of isoniazid is presumably its better penetration of the blood-brain barrier Thus Goodman and Gilman [15] state that "most studies indicate that streptomycin enters the cerebrospinal fluid slowly and to a very limited extent even after repeated large parenteral doses in the absence of meningitis" In contrast, Elmendorf and associates [16] demonstrated that appreciable concentration of isoniazid appeared in the cerebrospinal fluid of patients without tuberculous meningitis, as well as of those with meningitis We therefore now use isoniazid and aminosalicylic acid initially in all cases of primary miliary tuberculosis of the liver, with the addition of streptomycin in the more seriously ill patients We have some impression that, apart from its action in preventing tuberculous meningitis, isoniazid is more effective than streptomycin, although two of our patients responded very rapidly to streptomycin (cases 2 and 10) The condition of the patient in case 7, however, continued to deteriorate with use of streptomycin, 1 gm daily, with aminosalicylic acid for 19 days, she then improved dramatically when placed on isoniazid therapy and became afebrile in 14 days, although the dosage of isoniazid was only 100 mg twice a day Again, no objective or subjective improvement was obtained with five days of therapeutic trial of streptomycin in case 8 although later isoniazid (with streptomycin) was dramatically effective These experiences parallel that of Munro and Lees[17] their patient's condition deteriorated and the patient became semimoribund over a period of six weeks while on therapy with streptomycin, 1 5 gm daily, and aminosalicylic acid, she was then given 8 mg of isoniazid per kilogram of body weight daily and a remarkably rapid improvement ensued

If, in fact, isoniazid is more effective than streptomycin in the treatment of primary miliary tuberculosis of the liver, one may speculate that the difference may be explained partly by the method of administration Streptomycin is given parenterally, enters the blood stream slowly, and finally reaches the liver in a greatly diluted state Isoniazid, on the other hand is given orally and passes directly to the liver along the portal vein in a comparatively concentrated form With so few cases, however, we naturally do not make any definite conclusion but merely record a clinical impression Any difference could be explained equally well by relative resistance of the bacilli to streptomycin Since no organisms were cultured, this possibility cannot be excluded

Summary

The clinical entity of primary miliary tuberculosis of the liver is not rare The 12 cases presented were encountered over a period of four years Diagnosis was readily established by liver biopsy The response to treatment, especially with isoniazid, is often dramatic All eight of our adequately treated patients recovered without sequelae

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Tuberculin Skin Test —The information secured by tuberculin tests is of value to the physician Knowledge of the prevalence of sensitivity to tuberculin and, in most areas, to fungus antigens would appear basic to the diagnosis of pulmonary illness in any area, for it is impossible to evaluate a chest x-ray properly without knowledge of the skin test reactions Also, the knowledge of previous tuberculin tests is indispensable in evaluating a newly found positive tuberculin test This will be especially true if in the future the preventive treatment of tuberculin converters is accepted as a desirable procedure Tuberculin testing is of value to the individual, especially to those who have a morbid fear of tuberculosis With the low prevalence of tuberculin sensitivity it is extremely reassuring to be able to tell so many patients that they do not have and have never had tuberculosis This assurance can be given only through the use of tuberculin tests It would appear desirable to extend the use of tuberculin testing throughout larger areas of the country —M L Furcolow, M D, F A P H A, On the Usefulness of the Tuberculin Skin Test, *American Journal of Public Health,* September, 1956

SARCOIDOSIS AND PREGNANCY

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• *In following the course of 10 patients with sarcoidosis through 16 pregnancies, it was observed that pregnancy appears to have an ameliorating effect on sarcoidosis during the prenatal period but that this benefit is frequently lost after delivery. All the patients tolerated pregnancy well, however, there were two abnormalities of pregnancy and three fetal abnormalities noted in the 16 pregnancies. The observed improvement of the sarcoidosis during pregnancy might constitute evidence against tuberculosis being the etiology of sarcoidosis, since pregnancy does not improve, and may even aggravate, tuberculosis. It is possible that improvement of sarcoidosis during pregnancy is due to the increase in production of corticoids by the adrenal glands during gestation.*

The occurrence of pregnancy in women with sarcoidosis has seldom been reported.[1] Evaluation of the effects of these conditions on each other is important both for the academic desire of giving a better description and understanding of the disease process and for the practical necessity of forming valid bases for prognosis and management.

In the medical literature, we have found reports of 11 patients with sarcoidosis observed during the course of 13 pregnancies, and in some of the reports the data on the patients before and after pregnancy were sparse. In the majority of reported cases, the authors concluded that pregnancy had no effect on sarcoidosis and that no abnormalities of pregnancy occurred. In 1951 Berman[1f] and later Aikens and Beckwith[1g] each described a patient in whom the lesions of sarcoidosis improved during pregnancy and suggested that pregnancy may exert a favorable effect on the disease process.

During the past eight years, we have observed the course of 16 pregnancies in 10 patients with sarcoidosis. Our observations suggest that pregnancy has a beneficial effect on sarcoidosis that is frequently lost after delivery. The purpose of this report is to describe the changes observed in the manifestations of *sarcoidosis during pregnancy and to evaluate possible* effects of this disease on pregnancy.

Method of Study

Seven patients were followed throughout the course of one pregnancy each, two patients were followed through two successive pregnancies, and one patient was followed through five pregnancies. The diagnosis of sarcoidosis was established in every patient on the basis of typical clinical findings and the demonstration of histological lesions in biopsy specimens. All patients were studied to eliminate the possible existence of tuberculosis and the deep fungus diseases. The known duration of the disease prior to the time of pregnancy varied in the patients in our study from 4 months to 10 years. In all cases there was a period of observation of the natural course of the disease prior to pregnancy. All patients were followed in the clinic of the Hospital of the University of Pennsylvania throughout the course of pregnancy, and all have been observed for 10 months or more after delivery. The pertinent clinical data in these cases are summarized in table 1.

Serum protein concentration was measured by the biuret method.[2] Albumin and globulin were separated by the sulfate-sulfite technique described by Reinhold and co-workers.[3] Serum globulin was fractionated into the euglobulin and pseudoglobulin fractions by a similar technique with use of a 16.8% solution of sodium sulfate and a 1.7% solution of sodium sulfite. Pooled serum that had been subjected to electrophoretic analysis was used as a standard for each analysis. The protein fractions obtained by chemical separation compared closely with and can be related to those obtained by electrophoresis.[4] By the use of this method, the euglobulin was found to consist of the beta and gamma globulins.

Serial chest roentgenograms were obtained in all patients before, during, and after pregnancy. Because of the difficulty of interpreting changes in chest roentgenograms, the films were reviewed by four traine observers who had no knowledge of the relation o the roentgenograms to the time of pregnancy. N change was considered to be significant, unless it wa the unanimous opinion of all four observers tha unequivocal change was present.

Effects of Pregnancy on Sarcoidosis

Table 2 summarizes the changes in the abnorma findings during and subsequent to each pregnancy.

Changes During Pregnancy.—In eight of the patients studied, there was improvement in some of th manifestations of sarcoidosis during pregnancy. I two patients (cases 7 and 8), each of whom wa observed through a single pregnancy, there was n detectable change in single manifestations. The patient in case 7 had parenchymal lung lesions, and th patient in case 8 had hilar adenopathy. Only on patient (case 9) developed evidence of progressio of the disease, consisting of new skin lesions on bot legs, during the eighth month of pregnancy. Complet regression of the disease occurred in only one patien (case 3). This patient had peripheral lymphadenopa

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TABLE 1—*Summary of Clinical Data in Ten Patients with Sarcoidosis During Pregnancy*

Case No	Age at First Pregnancy Yr	No of Pregnancies Since Diagnosis	Biopsy Site	Duration of Disease Before Pregnancy	Involvement	Period of Observation After Last Delivery
1	23	2	Lymph node	8 mo	Eyes lungs lymph nodes blood serum proteins	2¼ yr
2	26	1	Tonsil and skin	2 yr	Tonsils lungs blood serum proteins skin	4¼ yr
3	26	5	Bone	4 mo	Lungs bone lymph nodes	17 mo
4	21	1	Lymph node	2 yr	Parotid glands lymph nodes lungs blood serum proteins	1 yr
5	32	1	Lymph node	8 yr	Eyes lungs lymph nodes	4 yr
6	28	1	Lymph node	9 yr	Lymph nodes lungs serum proteins	2 yr
7	31	1	Lymph node	4 yr	Lungs lymph nodes	2¼ yr
8	26	1	Parotid gland	14 mo	Lungs lymph nodes parotid	10 mo
9	22	1	Lymph node	1 yr	Eyes liver spleen lymph nodes joints blood skin	11 mo
10	16	2	Lymph node	10 yr	Joints lymph nodes lungs liver heart	1 yr

hy and extensive pulmonary lesions, both of which disappeared completely during her first pregnancy Three months after the delivery the lymphadenopathy recurred, but her chest roentgenogram remained normal The lymphadenopathy regressed during each of the two subsequent pregnancies and recurred each time within a few months after delivery Prior to, during, and subsequent to her last two pregnancies, no abnormalities were noted

Changes After Delivery—After delivery, the abnormal findings returned in about one-half of the patients (table 3) Within several months after delivery, four patients (cases 2, 4, 8, and 9) developed new manifestations of sarcoidosis that had not been previously noted These consisted of multiple skin lesions in case 2, leukopenia in case 4, parotid swelling in case 8, and hepatosplenomegaly with hemolytic anemia in case 9

All of the patients tolerated pregnancy well and, in some instances, considerably better than we had anticipated For example, one patient (case 6) had such advanced pulmonary changes before and at the onset of pregnancy (fig 1) that she became dyspneic on the slightest exertion Termination of the pregnancy was seriously considered on three occasions because of fear for the mother's safety, but her exercise tolerance actually increased during pregnancy and she delivered spontaneously at term without difficulty

TABLE 2—*Effects of Pregnancy on the Objective Findings in Ten Patients with Sarcoidosis*

			Abnormal Findings During Pregnancy			Abnormal Findings After Delivery		
Case No	Pregnancy No	Abnormal Findings Before Pregnancy	Unchanged	Improved	Worse or New Involvement	Remained Improved	Relapsed	New Involvement
1	1	Peripheral lymphadenopathy uveitis hilar adenopathy parenchymal lung lesions leukopenia anemia	Chronic uveitis leukopenia	Peripheral lymphadenopathy hilar adenopathy parenchymal lung lesions anemia		Peripheral lymphadenopathy parenchymal lung lesions anemia	Hilar adenopathy	
	2	Uveitis leukopenia hyperglobulinemia	Chronic uveitis leukopenia	Hyperglobulinemia			Hyperglobulinemia	
2	1	Hilar adenopathy parenchymal lung lesions hypoalbuminemia hyperglobulinemia leukopenia		Hilar adenopathy parenchymal lung lesions hypoalbuminemia hyperglobulinemia leukopenia		Hypoalbuminemia hyperglobulinemia	Hilar adenopathy parenchymal lung lesions leukopenia	Skin papules
3	1	Hilar adenopathy parenchymal lung lesions		Hilar adenopathy parenchymal lung lesions		Hilar adenopathy parenchymal lung lesions		
	2	Peripheral lymphadenopathy		Peripheral lymphadenopathy			Peripheral lymphadenopathy	
	3	Peripheral lymphadenopathy		Peripheral lymphadenopathy			Peripheral lymphadenopathy	
	4	None						
	5	None						
4	1	Peripheral lymphadenopathy hilar adenopathy hypoalbuminemia hyperglobulinemia		Peripheral lymphadenopathy hilar adenopathy hypoalbuminemia hyperglobulinemia		Hilar adenopathy hypoalbuminemia hyperglobulinemia	Peripheral lymphadenopathy	Leukopenia
5	1	Hilar adenopathy parenchymal lung lesions chronic uveitis	Chronic uveitis	Hilar adenopathy parenchymal lung lesions		Hilar adenopathy parenchymal lung lesions		
6	1	Hilar adenopathy parenchymal lung lesions hypoalbuminemia hyperglobulinemia		Hilar adenopathy parenchymal lung lesions hypoalbuminemia hyperglobulinemia			Hilar adenopathy parenchymal lung lesions hypoalbuminemia hyperglobulinemia	
7	1	Parenchymal lung lesions	Parenchymal lung lesions					
8	1	Hilar adenopathy	Hilar adenopathy					Parotid enlargement
9	1	Chronic uveitis leukopenia hilar adenopathy	Chronic uveitis hilar adenopathy	Leukopenia	Skin papules		Leukopenia	Hepatosplenomegaly hemolytic anemia
10	1	Parenchymal lung lesions		Parenchymal lung lesions			Parenchymal lung lesions	
	2	Parenchymal lung lesions		Parenchymal lung lesions		Parenchymal lung lesions		

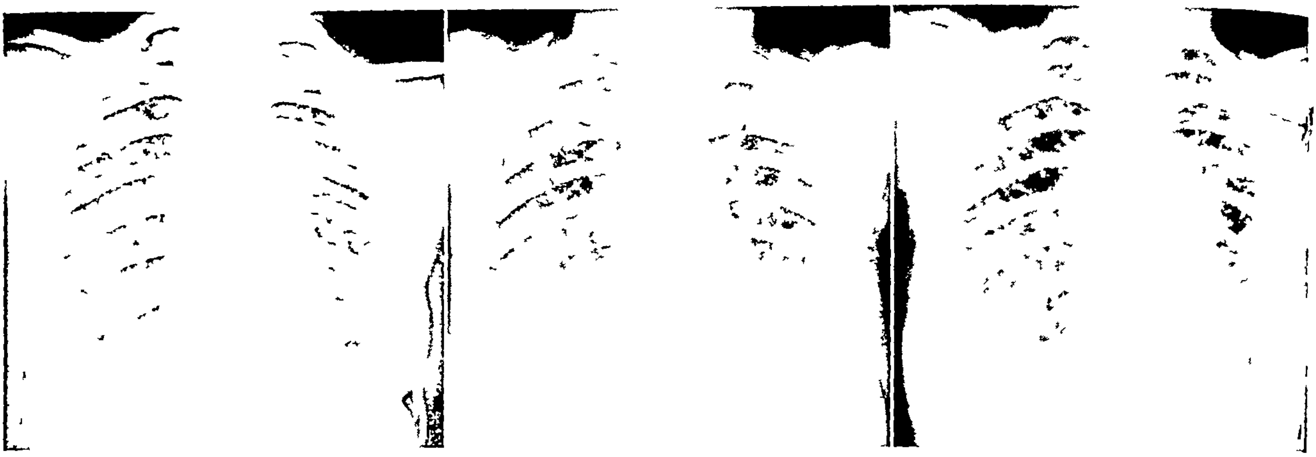

Fig 1 —Roentgenographic changes in patient in case 6 *Left* taken five months before pregnancy showing nodular disease scattered throughout both lung fields, combined with hilar and mediastinal adenopathy *Center,* taken at eight months gestation illustrating regression of parenchymal and hilar disease *Right,* taken two and one-half months after delivery showing return of parenchymal disease and hilar adenopathy

Changes in Specific Manifestations—The changes observed in the objective manifestations of sarcoidosis are summarized in table 3

Peripheral Lymph Nodes Significant enlargement of peripheral lymph nodes was present in patients before four pregnancies The nodes became normal in size during pregnancy in all four instances In one patient the lymph nodes remained normal during 18-months observation after delivery In the other three instances the peripheral nodes enlarged to the prepregnancy size within three months after delivery

Pulmonary Changes Hilar or mediastinal lymphadenopathy or both was observed before pregnancy on eight occasions, and serial chest x-rays revealed evidence of improvement in six instances during pregnancy No change was observed during two pregnancies The improvement was maintained in three of the six instances after delivery In the other three instances, the hilar and mediastinal nodes enlarged to their previous size four to six months after delivery Lesions of the pulmonary parenchyma were present prior to pregnancy on eight occasions, and some degree of clearing resulted in seven of these instances In one patient the condition was unchanged, and in none was it worse In three of the seven instances of improvement, the lesions became worse again after delivery

Uveitis Three patients had chronic indolent uveitis of long duration that did not change during the course of four pregnancies

Blood Changes Prior to four pregnancies, the white blood cell count was less than 4,000 cells per cubic millimeter In two patients, the white blood cell count returned to normal levels during pregnancy and fell to abnormal levels again within three months after delivery Leukopenia persisted throughout pregnancy in the other two instances One patient (case 1) had a normocytic hypochromic anemia, with a hemoglobin level of 46% In this patient, the red blood cell count and hemoglobin level increased to normal during pregnancy and remained normal after delivery

Serum Protein Levels The concentrations of total serum protein and of the various fractions were determined at frequent intervals before, during, and after pregnancy in four patients The changes observed are shown in figure 2 The total serum prot concentration was at the upper limits of normal or above in all of these patients before pregnancy The concentration of total serum protein decreased in all patients during gestation and increased after delivery The concentration of serum albumin decreased in

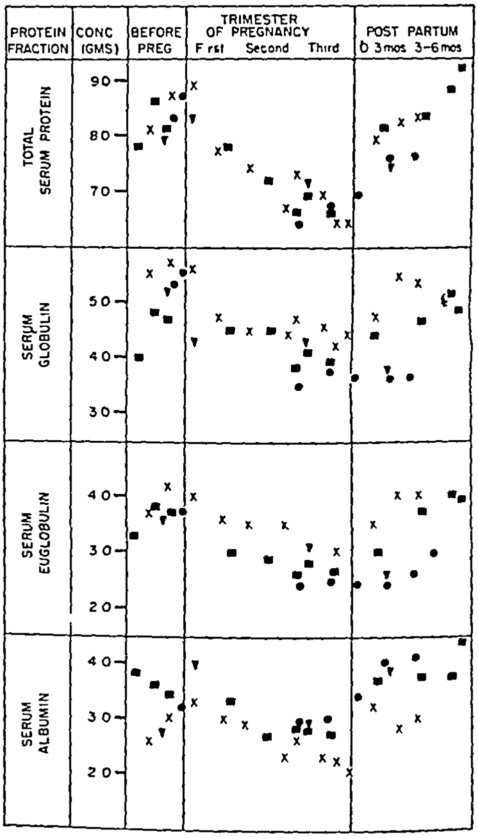

Fig 2 —Changes that occurred in the serum proteins during and after pregnancy in patients with sarcoidosis Values for determinations performed on each of the four patients with serum protein abnormalities are indicated by a different symbol such as x There was a fall in total serum protein, serum globulin serum euglobulin, and serum albumin levels These changes are compared to those occurring in normal pregnancy in figure 3

three patients and increased slightly in a fourth patient. After delivery there was an increase in the serum albumin concentration in all four patients.

The serum globulin concentration was abnormally high before conception in four of the patients. In these patients the serum globulin concentration decreased during gestation. In two of the four patients the globulin concentration increased to abnormal levels after delivery, in the other patients the globulin concentration remained normal for six months after delivery.

The changes in concentration of the euglobulin fraction paralleled the changes in total globulin concentration. The pseudoglobulin concentration decreased somewhat during pregnancy in two patients and was unchanged in the other two.

Coryell and co-workers[5] have studied the effect of pregnancy on the concentration of plasma protein fractions, determined by electrophoresis, in the normal female and have demonstrated that during gestation the total serum protein and the serum albumin concentrations decrease while the serum globulin concentration increases slightly. Hence the significance of the changes observed in patients with sarcoidosis can be appreciated only by comparison with the changes that occur in normal women during pregnancy. In figure 3 the changes that occurred in patients with sarcoidosis are compared with the changes observed in normal women by Coryell and co-workers. In the patients with sarcoidosis, the decrease in total protein concentration was greater than the average decrease that occurred in normal women. The decrease in serum albumin levels in patients with sarcoidosis was less than the average decrease in serum albumin levels observed by Coryell and co-workers[5] in normal women. The serum globulin and euglobulin concentrations decreased progressively in the patient with sarcoidosis, whereas the concentrations of both fractions increased slightly during pregnancy in normal women.

In our patients with sarcoidosis the concentrations of the serum protein fractions tended to return to normal during pregnancy. In some patients this improvement persisted after delivery. In others the abnormality returned fairly promptly after delivery.

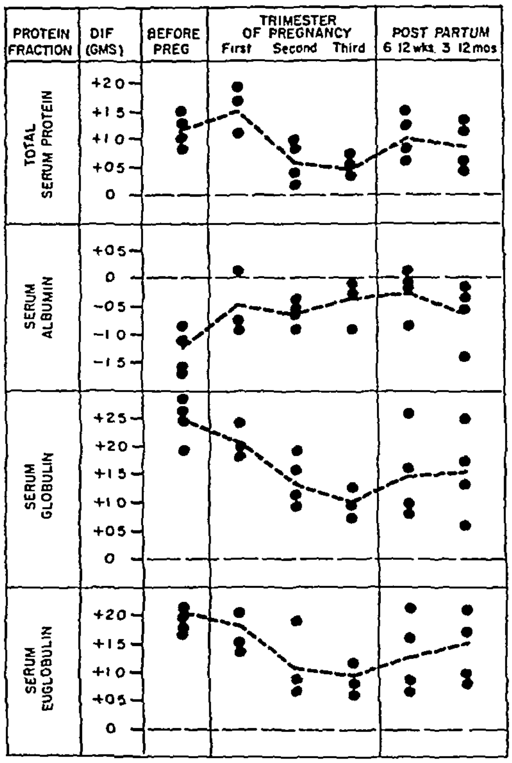

Fig 3.—Average value for total serum proteins and the protein fractions during pregnancy in normal women[5] were used as normal and plotted as the zero lines. Subtraction of the values found in patients with sarcoidosis in the present study from the values found in normal patients yielded the data plotted above. The dotted line is the mean for the plotted values. During pregnancy the serum proteins of patients with sarcoidosis returned toward normal (zero line).

Skin Lesions. Skin lesions were not noted prior to pregnancy in any individual. In the eighth month of pregnancy, the patient in case 9 developed bilateral lesions of the legs that proved to be due to sarcoidosis on biopsy. This was the only instance in which a patient became worse during pregnancy. Within three months after delivery, one patient developed skin lesions not previously noted.

Symptoms. The only subjective manifestations analyzed were cough and shortness of breath. These symptoms were present in five patients and in all five improved during pregnancy. It is noteworthy that

Table 3.—*Summary of Effects of Pregnancy on Objective Findings in Ten Patients with Sarcoidosis*

Conditions	No of Pregnancies	Status of Sarcoidosis During Pregnancy: Unchanged	Improved	New Involvement	Status of Sarcoidosis After Delivery: Remained Improved	Relapsed	New Involvement
Peripheral lymphadenopathy	4		4		1	3	
Pulmonary changes							
Hilar adenopathy	8	2	6		3	3	
Parenchymal lesions of lung	8	1	7		4	3	
Chronic uveitis	4	4					
Blood changes							
Leukopenia	4	2	2			2	1*
Anemia	1		1		1		1*
Serum protein abnormality							
Hypoalbuminemia	3		3		2	1	
Hyperglobulinemia	4		4		2	2	
Skin lesions				1*			1*
Parotid enlargement							1*
Heptosplenomegaly							1*

Patients with new involvements not included in column No of Pregnancies improvement in dyspnea occurred, since this is the reverse of the usual shortness of breath that develops in uncomplicated pregnancy After delivery two patients had a return of symptoms, while in three patients improvement was maintained during the postpartum period of observation

Possible Effects of Sarcoidosis on Pregnancy

Abnormalities of Pregnancy.—Two abnormalities of pregnancy were encountered premature delivery at 32 weeks in one patient, and stillbirth at 34 weeks in another A macerated fetus approximately five months of age was delivered No abortions occurred There was one twin pregnancy that was normal in all respects The placenta was examined grossly after delivery in every case and was found to be normal

Abnormalities of the Fetus.—Three fetal abnormalities were observed One infant with a supernumerary digit on each hand (case 1), one with six digits on the left foot (case 8), and a third infant (case 9) with congenital heart disease who died at the age of 6 months The autopsy findings in this child were cor triloculare, atresia of the pulmonary artery, overriding of the aorta and pulmonary artery, and patent ductus arteriosus

Comment

While we are well aware of the difficulty in relating a change in the manifestations of sarcoidosis to the effect of a specific agent or event, we believe that the results of this study indicate that pregnancy usually exerts an ameliorating effect on the disease process of sarcoidosis In the study of the natural history of a chronic disease, the effects of the major hormonal changes, such as occur in adolescence, pregnancy, and menopause, provide important information They add to the description of the disease process and thus avoid the ascribing of changes, resulting from these natural events, to changes in therapy or management In addition, such studies in other diseases have formed a background for the formulation of theories of etiology[6]

A possible etiology for sarcoidosis is still considered to be tuberculosis The available evidence as summarized by Rich[7] indicates that during pregnancy tuberculosis does not improve and is probably aggravated The improvement observed by us in sarcoidosis during pregnancy constitutes evidence against tuberculosis as the etiology of this disease, unless the ancient argument of the presence of a 'different' kind of tuberculosis is used

Improvement during pregnancy with subsequent relapse after delivery has been reported in patients with rheumatoid arthritis, psoriasis, fibrositis, asthma, hay fever, and intermittent hydrarthrosis[6] The analogous response of sarcoidosis during pregnancy suggests a relationship to these diseases of hypersensitivity but offers no direct proof that they are kindred conditions However, when one considers that sarcoidosis is often associated with eosinophilia,[8] disturbed serum protein patterns,[8] clinical response to steroid therapy,[9] and serologic hyperreactivity,[10] the hypothesis that sarcoidosis may be related to hypersensitivity appears more attractive

After delivery, new manifestations were noted in four patients These may have been due to simple progression of the disease but more likely represented a so-called rebound relapse, previously described after steroid therapy[11] The mechanism of these effects is unknown Because administration of large dosages of adrenal steroids usually produces regression of the active lesions of sarcoidosis,[9] it is possible that improvement in the disease during pregnancy is due to the increase in production of corticoids by the adrenal glands during gestation[12]

Because sarcoidosis often produces extensive changes, particularly in the chest roentgenogram, the question of the desirability of avoiding or of interrupting pregnancy is often raised in these patients The fact that active tuberculosis is affected unfavorably by pregnancy has led those who believe that sarcoidosis is due to an altered reaction to the tubercle bacillus to advocate therapeutic abortion in this disease Our studies and the evidence that is available from the literature suggest that therapeutic abortion should rarely be necessary in patients with sarcoidosis

The abnormalities of pregnancy and the fetus are worthy of comment The two miscarriages and three congenital abnormalities in 16 pregnancies make further observations of this relationship important There was no family history of congenital abnormalities in any of the three cases in which such abnormalities were present A review of the previously reported cases[1] disclosed that the 11 patients delivered 12 normal-term infants during the period of observation One stillbirth occurred, apparently due to a transverse position of the fetus No abortions, except one performed therapeutically, occurred in those patients

Summary and Conclusions

In 10 patients with sarcoidosis the course of 16 pregnancies has been observed Multiple manifestations of the disease were usually present, and in 8 of the 10 patients improvement of some of the manifestations occurred during the period of pregnancy In two patients no change occurred Except for the development of skin lesions of the leg in one patient, no evidence of progression of the disease during pregnancy was noted Relapse frequently occurred after delivery, and four patients developed new manifestations in the immediate postpartum period Two premature deliveries with one stillbirth occurred, and three congenital abnormalities were noted in 16 pregnancies

These observations indicate that pregnancy usually has a beneficial effect on sarcoidosis that is often lost after delivery The possible deleterious effect of sarcoidosis on pregnancy and on the fetus is worthy of further study

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CLINICAL RESULTS WITH VIADRIL IN ONE THOUSAND CASES

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and
John W Pillion, M D , Lawrence, Mass

• Viadril, a synthetic derivative of pregnanedione and succinic acid, was used as the primary anesthetic agent in 1,000 surgical operations The customary premedication was given one hour before the induction A total of 1 to 1 5 Gm of Viadril was given intravenously, generally as a 0 5% solution in 5% dextrose and water, over a period of about four minutes It took effect in about three minutes The degree of anesthesia so produced was not sufficient for intubation and maintenance without the aid of muscle relaxants and inhalation anesthetics There were no deaths attributable to the Viadril, but it had many unfavorable circulatory and respiratory effects Its obtunding effect on laryngeal and pharyngeal reflexes, however, facilitated the insertion of an airway, and this suggests its utilization in surgery of the head and neck It also indicates that further exploration of the anesthetic properties of other steroid compounds is desirable

We have administered Viadril (21-hydroxypregnanedione sodium succinate) intravenously in 1,000 cases and are presenting our observations as to the value or practicability of the drug as an anesthetic agent or as an adjunct to such other forms of anesthesia as regional, spinal, and general The literature concerning the anesthetic activity of the steroids was reviewed before starting this study, and there was evidence available that the chosen steroid (Viadril) had certain properties that could possibly be utilized by the anesthesiologist However, as the series grew in number, the facts as presented in the paper by Howland and associates [1] became quite evident

History

New families of drugs have from time to time been introduced into the field of anesthesiology, either as primary anesthetic agents or for use in conjunction with existing modalities of anesthesia One need hardly mention such momentous advances as the introduction of procaine to spinal anesthesia or of curare to general anesthesia Recently another family of compounds was introduced to anesthesia in the form of steroids which are capable of producing an anesthetic state" without any manifestation of hormonal activity

In 1941 Hans Selye [2] observed that steroid hormones would cause deep anesthesia in various experimental animals if they were administered intra-abdominally or intravenously in large amounts Later observations by Selye and co-workers [3] with some 75 steroid compounds were carried out In partially hepatectomized rats [4] major abdominal surgery could be carried out under "steroid anesthesia' Desoxycorticosterone acetate and progesterone were found to have the greatest degree of anesthetic activity

In conjunction with the above observations, Selye [5] showed that resistance to the anesthetic effect of steroid hormones can be acquired by the organism and

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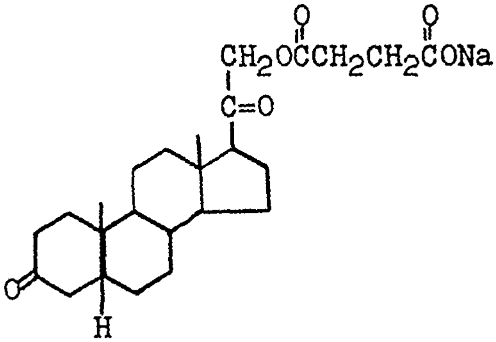
Read before the Section on Anesthesiology at the 105th Annual Meeting of the American Medical Association Chicago June 13, 1956 that it is an adaptation to the pharmacological action is such, rather than to a certain chemical compound possessing this pharmacological activity Another observation[6] was that the anesthetic activity increased in those animals whose central nervous system was least developed From these facts Selye introduced a fish bioassay for anesthetic steroid activity Selye concluded that steroids represented a new group of anesthetics, and indeed even some steroids not known to exhibit hormonal properties proved to be endowed with a pronounced narcotic effect

Firson, Carr, and Krantz[7] disputed the use of the word anesthesia as applied to the cortical depression produced by the steroid hormones, though it produces a similar pattern to the barbiturates

With the basic work of Selye in mind, Laubach, P'an, and Rudel[8] tested a large number of water-soluble steroids in regard to anesthetic activity, toxicity, and hormonal activity and from their work evolved Viadril as the one with the most potent anesthetic property combined with low toxicity and no demonstrable hormonal activity This compound was first used in man by Gordon and associates[9] and later clinical observations were made by Murphy[10] and his group at the University of California with rather promising results A recent report by Howland and associates[1] has modified some of the observations of the former group



Structural formula of Viadril (21-hydroxypregnanedione sodium succinate)

Chemistry

Viadril is synthesized by esterifying 21-hydroxypregnanedione with one of the two carboxyl groups of succinic acid and reacting the resulting ester with sodium carbonate to produce the acid salt The resulting compound is readily soluble in either isotonic sodium chloride solution or 5% dextrose in water and exists in its ionic state when in solution Examination of the chemical formula shows that Viadril may be considered to be the sodium salt of a lipid fatty acid, which acts as an irritant and in some cases as a sclerosing agent in the vein into which it is flowing This explains the complaint of pain and burning during the infusion of Viadril and the resulting phlebitis and thrombosis

The infused Viadril is hydrolyzed into its component parts, 21-hydroxypregnanedione and sodium succinate, the latter of which plays no part in the production of anesthesia The ketone oxygen on the third carbon atom of the steroid molecule is then reduced to a hydroxy group This also exhibits anesthetic properties It has been shown, however, that this property exists only if the hydroxy group on the third carbon atom and the hydrogen on the fifth carbon atom are optically on the same side of the steroid molecule (Tomkins[11]) 21-Hydroxypregnanedione is excreted in the urine in its reduced form after being conjugated with glycuronic acid (Venning and Browne[12])

The series was initiated with the use of Viadril as the primary anesthetic agent in major operations (522 cases) Later we used it as an adjunct to other modalities (particularly epidural block) as a sedative or hypnotic (352 cases) The remainder of the series were cases of minor nature, such as dilation and curettage, and cystoscopy (126 cases)

Observations

There were no deaths attributable either directly or indirectly to the anesthetic agent In 522 cases Viadril was used as the primary agent, by which it is meant that Viadril was used as the agent of induction of anesthesia Nearly all patients in this series were intubated with the aid of a muscle relaxant (succinylcholine), and surgical relaxation was maintained with tubocurarine and nitrous oxide-oxygen supplementation In a very few instances efforts were made to intubate the trachea and to conduct the entire surgical procedure with Viadril alone It soon became apparent that this was not consistently possible Intubation without succinylcholine was usually successful, but too frequent "bucking rendered it inadvisable Lack of adequate relaxation during surgery even with nitrous oxide-oxygen supplementation made the routine use of tubocurarine imperative

Following is a loose breakdown of the types of major surgery performed with Viadril as the primary agent thyroidectomy, 52 cases, upper abdominal (gallbladder, gastrectomy), 156, lower abdominal (hysterectomy, appendectomy), 128, thoracic (thoracoplasty, pulmonary resections), 12, and others (intestinal resections, pelvic gynecologic, kidney and bladder), 174

In 352 cases Viadril was used as an adjunct to other modalities The breakdown for this series was as follows epidural block, 290 cases, spinal block, 37, and brachial and other peripheral nerve blocks, 25

In the cases listed above, Viadril was used as an hypnotic in place of a barbiturate In this series we found it very useful, particularly as regards the great difference on the laryngeal reflexes when compared with barbiturates

In the 126 cases of minor nature in which Viadril was used, efforts were made to conduct the entire procedure with Viadril alone without supplementation In most of them, however, supplementation with nitrous oxide-oxygen anesthesia was necessary The breakdown for this series was as follows dilation and curettage, 47 cases, cystoscopy, 12, genital (male and female), 38, and extremities, 29

Results

It is pertinent to remark that all the cases were physical status 1 or 2 (no serious physical factors affecting the anesthetic risk) The sexes were about equally divided, and the ages ranged from 15 to 81 years We avoided the use of Viadril in children and in risk C patients (those with one or more serious physical factors affecting the anesthetic risk) Observations were made in regard to the following conditions and effects

Premedication—We employed the usual premedication drugs, morphine or meperidine, atropine or scopolamine, and combinations of the latter with promethazine, in the usual dosage range administered about one hour before anesthesia began We detected no noticeable difference in regard to any of them, with the exception that those patients who had received promethazine instead of an opiate appeared to have less respiratory depression

Amount and Concentration—The vast majority of patients to whom Viadril was administered received a 0 5% solution in 5% dextrose and water A few received a 1% solution, and in no instance did we exceed this concentration The total amount varied from a minimum of 500 mg to a maximum of 1,500 mg The great majority received 1 to 1 5 Gm

Speed of Infusion—The speed of infusion varied between three and nine minutes The great majority of infusions were made within four minutes

Location of Vein Used—Generally we sought a vein in the forearm, which was not located at a joint, for the injection of Viadril Occasionally, however, we had to employ the antecubital vein or one located on the dorsum of the hand

Onset of Hypnosis—The time from the end of infusion to the onset of hypnosis varied with the dose and the speed of infusion The average period was three minutes

Effect on Cardiovascular System—The usual effect on the cardiovascular system was an early but moderate fall in systolic pressure, with a narrowing of the pulse pressure that lasted a variable length of time (5 to 30 minutes) In the group in which 1% solution was employed, there occasionally developed a severe hypotension which responded well to vasopressor drugs Two patients, however, caused concern but finally responded to treatment In one instance hypertension that could not be directly attributed to the effects of the drug was observed postoperatively

There were no severe cardiac arrhythmias noted in this series A tachycardia was present in nearly all cases, which was quite variable in degree, ranging from 10 to 80 beats per minute above the patients' normal pulse rate In some instances extrasystoles were observed to be associated with the tachycardia

Effect of Respiration—We noted the most undesirable features of Viadril in its effect on respiration The respiratory patterns were varied and bizarre In one patient (a woman, aged 29) a tachypnea to 60 respirations per minute was recorded Other respiratory rates varied from 30 to 40 respirations per minute Bradypnea was noted in 26%, with a rate varying from 15 down to 10 respirations per minute The occurrence of apnea was frequent (10%) This lasted from 5 to 25 minutes These patients, of course, received assistance by bag pressure The apnea was in the early phase of the procedures but was not related to the succinylcholine used for intubation In some instances the apnea occurred when succinylcholine was not previously administered All respiratory changes occurred shortly after the infusion of the drug and, except for the one case of severe tachypnea lasting 45 minutes, there was not any cause for alarm Tachypnea in the latter case persisted with downward gradation for five hours, at which time the respiration returned to normal The patient was awake during the last four hours of the persistent tachypnea This patient was operated on again the same evening for the arrest of intra-abdominal hemorrhage with the use of cyclopropane-oxygen There was no evidence of tachypnea with the latter agent

Duration of Anesthesia—The duration of anesthesia, of course, varied with the dose administered The average duration after the administration of 1,500 mg was 1 hour and 25 minutes In occasional cases with this amount there were short-lasting effects (25-35 minutes) In one instance in which the premedication was excessive, unconsciousness persisted for four hours There was, however no complete failure in any case to obtain unconsciousness

Incidence of Complications in Use of Viadril

Respiratory	
Tachypnea—moderate 30-40 respirations per minute	35%
severe 40-60 respirations per minute	0 1%
Bradypnea—10-15 respirations per minute	26%
Apnea	10%
Phlebitis	
Severe—5 cases	0 5%
Phlebitic pain on injection	15%

Phlebitis—In utilizing the 0 5% concentration and rapid infusion there were surprisingly few instances of phlebitis In view of the literature on the subject and the experience of others, we expected more trouble in this regard There were five cases of severe phlebitis in the whole series (0 5%), although many more patients complained of pain on injection (15%) There was no evidence of phlebitis postoperatively in the latter group We feel that the 0 5% concentration and rapid infusion, followed by 50 cc of isotonic solution administered at a rapid rate to "wash out' the vein, has contributed to the decreased incidence of phlebitis in this series

Comment

In 1,000 administrations of Viadril in this study we observed the effects of the drug as an anesthetic agent These effects were most apparent on the cardiovascular and respiratory systems Hypotension was frequent but not excessive and was easily controlled Tachycardia of varying degree was almost constantly present Phlebitis occurred in five cases, although there were many other patients who complained of pain on injection but had no postoperative trouble in this regard The most objectionable effects were on the respiratory system, these showed many bizarre and varied patterns Bradypnea and apnea were frequently encountered, and tachypnea in one case was alarming In all cases the drug produced anesthesia but of uncertain duration It did not produce sufficient anesthesia for surgery in the vast majority of cases and had to be supplemented with inhalation agents Relaxation for intubation and for surgery required the use of muscle relaxants Viadril did not sensitize the pharyngeal reflexes, and we found it most frequently useful as a supplement to regional anesthesia, in which it produced satisfactory unconsciousness and permitted the insertion of an airway without arousing undesirable reflexes The incidence of phlebitis, comparatively speaking, was very low, and we attribute this to the high dilution of the drug and its rapid administration In only one case was recovery prolonged beyond 1 hour 30 minutes, and this was probably due to excessive preanesthetic sedation

Summary and Conclusions

Viadril (21-hydroxypregnanedione sodium succinate) was administered intravenously to 1,000 patients for a variety of surgical procedures Ages ranged from 15 to 81 years A degree of anesthesia was produced in all cases but was not sufficient for intubation and maintenance without the aid of muscle relaxants and inhalation anesthetic agents There were no deaths in the series attributable directly or indirectly to the anesthetic agent

There were many deleterious effects evident on the cardiovascular and respiratory systems Hypotension and tachycardia were present in nearly all cases, and also occasional cardiac irregularities

Phlebitis at site of injection occurred in 0 5% of the cases Bradypnea and apnea were observed frequently, and in one case tachypnea (60 respirations per minute) persisted for five hours The laryngeal and pharyngeal reflexes were obtunded to permit the insertion of an airway in all cases

The steroids show promise as anesthetic agents The steroid used in this series (Viadril) is not recommended for routine use Further work on the steroids may evolve a product that will be more satisfactory The only virtue of Viadril in this study was its effect on the reflexes of the pharynx and larynx In this respect its utility in head and neck surgery may be considered

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The Viadril used in this study was supplied by Chas Pfizer & Company, Inc , Brooklyn, N Y , through H W Rudel, M D

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Digitalis Therapy in Children—Digoxin is suggested as the the drug of choice for digitalis therapy in infants and children, primarily because of its rapid dissipation Our studies and experience with digoxin in normal infants as well as in those with heart disease enable us to propose a digitalizing regimen which has proven effective and yet safe in most of the infants who can benefit from digitalis therapy We recommend an initial "digitalizing dose" of 75 μg/kg in 24 hours, orally or intramuscularly One-half or one-third is given first and the remainder in equal portions every 6 to 8 hours If the desired clinical effect is evident, a maintenance dose of 25 μg/kg once daily is administered If, however, the desired clinical effect has not been achieved after the initial "digitalizing dose,' 25 μg/kg should be given under careful clinical and electrocardiographic observation every 6, 8 or 12 hours (depending upon the severity of the failure) until either a satisfactory effect or toxic signs appear The maintenance dose may then be proportionately larger Changes in S-T segment and T wave in the electrocardiogram are not considered signs of toxicity The development of vomiting or the appearance in the electrocardiogram of significant conduction defects, or arrhythmias are indications of digitalis toxicity Relatively large amounts of digoxin may be necessary in some infants both initially and for maintenance in order to obtain maximum benefit from the drug—S O Sapin, M D , E Donoso, M D , and S Blumenthal, M D , Digoxin Dosage in Infants, *Pediatrics,* November, 1956

CLINICAL NOTES

SPUTUM SPECIMENS VERSUS BRONCHIAL ASPIRATES IN DIAGNOSIS OF BRONCHOGENIC CANCER

Doris S Rome, M D
and
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A marked increase in the incidence of bronchogenic carcinoma is evident in virtually all reports, and five-year survival rates are less than 5% in most series It has been shown to be possible to suspect the diagnosis of lung cancer in asymptomatic patients by routine roentgenographic examination, and the survival of these patients after pneumonectomy is longer than that of patients with symptoms In a series of cases of bronchogenic carcinoma at the Albany Hospital a diagnosis of pulmonary illness, usually considered to be pneumonia and associated with expectoration, preceded the diagnosis of cancer in 18 1% of cases

Since the cytological examination of sputum specimens for malignant cells is a reliable method of suspecting pulmonary cancer,[1] the use of this method in all adults with expectoration seems indicated Cytological examination of bronchial washings[2] is considered to produce fewer false-positive and false-negative results than examination of sputum Bronchoscopy probably should not be performed without a definite indication such as suspected pulmonary cancer or resistant lung infection, so bronchial aspirates are examined only when patent lung disease is present, Therefore, this examination is a poor screening procedure The availability of sputum makes it a suitable indicator for the early suspicion of pulmonary cancer

It is the purpose of this discussion to evaluate the results of cytological examination of sputum specimens and bronchial aspirates in the diagnosis of bronchogenic cancer In the study reported here, 3,102 specimens of sputum and bronchial aspirates from 1,203 patients were examined cytologically at the Albany Medical Center for the presence of cancer cells A total of 266 patients were ultimately considered to have bronchogenic cancer

Method and Materials

Sputum was obtained by instructing patients to expectorate directly into a jar containing 70% alcohol Bronchial aspirates were placed directly into 95% alcohol In most instances, direct bronchial aspiration sufficed, but in some cases the bronchi were lavaged with saline solution when secretions were not readily available This was not a routine procedure In the laboratory the specimens were centrifuged, and the sediment was smeared on glass slides Smears were stained by the usual Papanicolaou technique,[3] and each slide was studied for a minimum of 10 minutes Slides suspected of indicating cancer were studied for a longer period of time Reports were made according to the Papanicolaou classification, specimens categorized in class 1 and 2 were considered negative those in class 3 suspicious, and those in classes 4 and 5 were regarded as positive for the presence of cancer

In a 37-month period, 3,102 specimens were received from 1,203 patients, an average of 2 5 specimens per patient This includes specimens of bronchial aspirates and sputum and many patients provided material for both examinations Most of the patients were in the Albany Hospital and on the thoracic surgery service, although many specimens were received from patients visiting outpatient clinics and private physicians in the Albany area In many of these patients a suspicion of chronic lung disease possibly carcinoma, already existed Specimens were not obtained from all patients with lung cancer, and, occasionally, when the diagnosis was obvious at bronchoscopy, no specimens were submitted for cytological study

Table 1 —*Pulmonary Status of Patients Whose Sputum Specimens or Bronchial Aspirates Were Examined Cytologically*

Diagnosis	Patients	
	No	%
Negative no tumor	716	59 5
Positive bronchogenic cancer	203	16 9
False negative bronchogenic cancer	63	5 3
False suspicious no tumor	97	8 1
False positive no tumor	10	0 8
Metastatic lesion	46	3 8
Lymphoma	10	0 8
Esophageal tumor	4	0 3
Inadequate specimen	21	1 7
Diagnosis undetermined	33	2 7
Total	1 203	100 0

Results

Table 1 is a summary of the cases in which cytological examination was done In this series there were 266 patients with lung cancer, and in 254 the diagnosis was eventually established by histological examination In the other 12 cases there was strong clinical evidence of lung cancer, 8 of these patients have since died In 203 of the 266 cases (76 3%) positive or suspicious results of the cytological examination were reported These results are presented in more detail in table 2 Cytological results indicated that specimens from 126 patients (47 4%) were definitely positive and that specimens from 77 (28 9%) were suspicious

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Of the 266 patients considered to have lung cancer, in 63 (23.7%) cytological examinations of the specimens of sputum or bronchial aspirates gave negative results. Nearly half of these patients had anaplastic carcinomas and 30% had squamous-cell type of cancer (table 3). If more specimens had been obtained or if more vigorous washing of the bronchial tree had been done at bronchoscopy, it might have been possible to reduce the size of this group.

Table 2.—*Cytological Diagnosis of 266 Cases of Bronchogenic Carcinoma*

Type of Tumor	Patients No.	Positive Diagnosis No.	Positive Diagnosis %
Epidermoid	113	94	83
Anaplastic	79	50	63
Adenocarcinoma	12*	6	50
Undetermined	43	38	88
Clinical	12	11	92
Alveolar	4	2	50
Fibrosarcoma	1	1	100
Mesothelioma	1	1	100
Carcinoma in situ	1	0	0
Total	266	203	

* In 2 cases the adenocarcinoma did not invade a bronchus.

Results of the cytological examinations were false-positive in only 0.8% of cases, but an additional 8.1% were falsely suspicious. Of the 97 patients with sputum specimens classed as 3 or suspicious, 44.2% were eventually proved to have pulmonary cancer, and the remaining patients were considered to be free of cancer according to the diagnosis at discharge. This is in essential agreement with other studies, which indicate about a 50% accuracy of a class-3 cytological report. False-positive results of examinations are a matter of concern in any cytology laboratory, and the source and meaning of the abnormal cells causing them remains obscure. In some cases, cancer may yet be proved, but these results emphasize the necessity of regarding cytological findings as adjuncts to other findings and of never considering this examination as diagnostic.

Table 3.—*Pulmonary Tumors Missed by Cytological Examination*

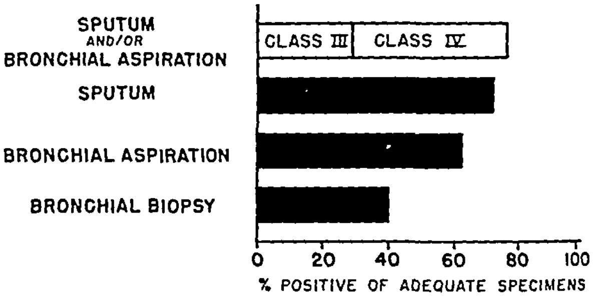
Type of Carcinoma*	Patients No.	Patients %
Epidermoid	19	30.2
Anaplastic	29	46.0
Undetermined	5	7.9
Adenocarcinoma	6	9.5
Alveolar	2	3.2
Carcinoma in situ	1	1.6
Clinical	1	1.6
Total	63	100.0

* In 2 cases the tumor did not invade a bronchus.

Table 4.—*Comparison of False-Positive Cytological Reports of Examinations of Specimens of Sputum and Bronchial Aspirate in 107 Cases*

Findings	Sputum	Bronchial Washing
Class 3	91	18
Class 4	8	3
Negative	4	34
Total	103	55
Examination not done	4	49
Inadequate	0	3

A comparison of the results of study of bronchial aspirates and sputum specimens in 203 cases of bronchogenic carcinoma reveals that sputum specimens are slightly more accurate than bronchial aspirates. In 172 cases adequate sputum specimens were obtained, and in 160 cases (93%) the results were positive. In 129 of these same cases adequate bronchial aspirates were obtained, and in the results of examinations (79.8%) were positive. Bronchial biopsy specimens were positive in 65 cases, or only 32%. Of 203 patients with pulmonary cancer, 61 had positive sputum specimens and positive bronchial washings, 25 had positive sputum specimens and negative bronchial washings, and 11 had negative sputum specimens and positive bronchial washings. In the remaining 106 cases either bronchial aspirates or sputum specimens were examined alone. There is little doubt that sputum examination can be of equal value with examination of bronchial aspirates in the detection or screening of cases for lung cancer. However, table 4 illustrates that false-positive reports are more frequent in sputum examinations than in the examination of bronchial aspirates. A class-3 report on a sputum smear must be carefully evaluated as atypical cells from the nasopharynx are more apt to be present in a sputum smear than in a smear of the bronchial aspirate.



Graph comparing the accuracy of examinations of specimens of sputum, bronchial aspiration, and bronchial biopsy in the detection of bronchogenic carcinoma.

In the diagnosis of 266 cases of pulmonary cancer the examination of sputum was slightly more accurate than the examination of bronchial aspirates, and the combination gave the highest percentage of accuracy (see figure). Since sputum is easily obtained with little expense and discomfort to the patient, it is felt that all patients with sputum should have this test available to them.

Comment

Cough and expectoration are commonly present in adults as a result of chronic irritation due to smoking, chronic bronchitis, or an acute pulmonary infection. The routine examination of the sputum of adults for tumor cells can be an effective method of suspecting bronchogenic carcinoma and may well arouse the suspicion of the disease while a cure is still possible. The data presented in this and other studies indicate that the results of such examinations of sputum are reasonably accurate. In this study they were slightly more accurate than the study of bronchial aspirates, which are appreciably more difficult to obtain. A cytological report of positive or suspiciously positive sputum should never be considered as establishing a diagnosis of cancer, but it can and should indicate the need for further study of a patient with bronchoscopy, laminagraphy, fluoroscopy, and other specialized radiologic techniques in an attempt to locate pulmonary cancer

Summary

In 1,203 patients a total of 3,102 specimens of sputum and bronchial aspirates were examined cytologically for presence of cancer cells In this series, 266 patients were ultimately believed to have bronchogenic cancer, and in all but 12 the diagnosis was established by histological examination Of 266 patients with bronchogenic cancer 76 3% had suspicious or positive results of cytological examinations for malignant cells in sputum or bronchial aspirates It was possible to establish a diagnosis somewhat more accurately with use of sputum specimens than with use of bronchial aspirates It is strongly urged that all patients with sputum have cytological examinations of secretions in an effort to make an earlier diagnosis of bronchogenic cancer

This study was supported by a grant from the New York State Division of the American Cancer Society and by a cancer teaching grant from the U S Public Health Service

Miss Helen Boris and Mrs Alice Koethen gave technical assistance in this study

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COUNCIL ON DRUGS

Formerly the Council on Pharmacy and Chemistry

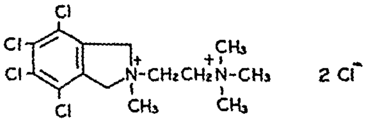
Monographs and supplemental statements on drugs described here and in subsequent editions of New and Nonofficial Drugs are based on the evaluation of available scientific data and reports of investigations Applicable commercial names for preparations of evaluated drugs are listed at the end of monographs and parenthetically in the text of supplemental statements, additional commercial names of which the Council is informed will be included with subsequently published supplemental statements and annual editions of New and Nonofficial Drugs

H D Kautz, M D, *Secretary*

NEW AND NONOFFICIAL DRUGS

Formerly New and Nonofficial Remedies

Chlorisondamine Chloride—4,5,6,7-Tetrachloro-2-(2-dimethylaminoethyl)isoindoline dimethylchloride—The structural formula of chlorisondamine chloride may be represented as follows



Actions and Uses—Chlorisondamine chloride, a quaternary ammonium compound, is a ganglionic blocking agent with pharmacological actions similar to those of other agents in this category It is more potent than the hexamethonium salts and pentolinium tartrate, but less so than mecamylamine hydrochloride The drug produces a somewhat longer duration of action than does hexamethonium, ganglionic blockade and resultant hypotensive effects generally persist for 8 to 12 hours after a single therapeutic dose Absorption from the gastrointestinal tract is rapid but, as with the older ganglionic blocking agents, is unpredictable and erratic Hence, precise control of hypertension is more easily achieved with parenteral injection than by oral administration

Chlorisondamine chloride is used for the management of the more severe forms of hypertension, including the malignant phase of this disease When used in adequate amounts, the drug effectively lowers diastolic and systolic blood pressure in most patients Because of the potency and potential toxicity of this agent, ganglionic blockade should not be initiated with it unless the patient can be kept under close supervision It should never be used for the treatment of mild, labile hypertension

Side-effects associated with chlorisondamine chloride are the same as with other ganglionic blocking agents Blurring of vision, dryness of the mouth, and postural hypotension occur frequently after therapeutically effective doses, urinary retention, especially in older patients with prostatic hypertrophy, is another potential complication Constipation, which can proceed to paralytic ileus, also must be guarded against The drug is contraindicated after cerebral vascular accidents or myocardial infarction and in patients with renal or coronary insufficiency, obstructions at the neck of the bladder, or pyloric stenosis

Dosage—Chlorisondamine chloride is administered orally, subcutaneously, or intramuscularly In general, parenteral injection should be reserved for the initiation of therapy in hospitalized patients with acute hypertensive crises Oral administration may be used for maintenance therapy in these patients and also for ambulatory patients with less acute forms of hypertension Dosage by either route must be highly individualized initial dosage should be low and increased by small increments until the desired therapeutic effect is obtained.

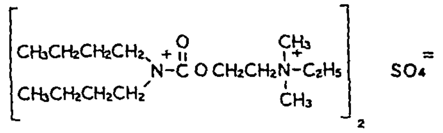
For parenteral injection by either the subcutaneous or intramuscular routes, the initial dose should not exceed 2.5 mg. Depending on response, this may then be increased by increments of 1 mg at intervals no more frequent than every eight hours. The effective single dosage by the parenteral routes will usually range between 1 and 10 mg. Once hypertension has been stabilized, maintenance by the oral route may be substituted, using approximately twenty times the injectable dose.

For oral therapy in ambulatory patients, the initial dose is 10 mg taken in the evening. The next day, dosage is increased to 10 mg in the morning and again in the evening. On the third day, 10 mg is administered in the morning and 20 to 25 mg in the evening. Dosage is increased to 20 to 25 mg in the morning and again in the evening on the fourth day. The morning dose for the fifth day is 20 to 25 mg followed by 35 to 50 mg in the evening. Thereafter, dosage is increased in the stepwise fashion indicated previously, by 10 to 25 mg increments, up to approximately 200 mg per day, depending on response.

Applicable commercial name Ecolid Chloride

Ciba Pharmaceutical Products Inc cooperated by furnishing scientific data to aid in the evaluation of chlorisondamine chloride

Dibutoline Sulfate.—Bis[dibutylcarbamate of ethyl-(2-hydroxyethyl)dimethylammonium] sulfate.—The structural formula of dibutoline sulfate may be represented as follows:



$$\left[(CH_3CH_2CH_2CH_2)_2N-\overset{O}{\overset{\|}{C}}\,O\,CH_2CH_2\underset{CH_3}{\overset{CH_3}{\overset{+}{N}}}-C_2H_5\right]_2 SO_4^{=}$$

Actions and Uses.—Dibutoline sulfate, a synthetic choline ester, is related in chemical structure to acetylcholine; however, it depresses instead of stimulates the parasympathetic nervous system. The drug exerts a direct spasmolytic effect on smooth muscle and, by interfering with the liberation and/or accumulation of acetylcholine, blocks physiological functions dependent on cholinergic transmission. Thus, the principal pharmacological actions as well as the side-effects of this drug are chiefly atropine-like in nature. Dibutoline sulfate differs from atropine sulfate mainly in exerting a more rapid and intense but shorter duration of action. Unlike atropine and some of the other synthetic anticholinergic drugs, dibutoline is ineffective by the oral route and requires parenteral injection.

Since it diminishes gastric secretion and antagonizes hypermotility, dibutoline sulfate is useful for the adjunctive management of peptic ulcer. The drug may likewise be expected to produce prompt relief of pain and discomfort associated with certain other spastic conditions of the gastrointestinal tract such as functional pylorospasm, acute gastroenteritis, and the irritable colon syndrome.

Dibutoline sulfate has also been used for the treatment of certain spastic disorders of the biliary and genitourinary tracts. These include functional spasm of the sphincter of Oddi, biliary colic arising from cholelithiasis, urinary bladder spasm after cystoscopy or transurethral prostatic resection, and premenstrual cramps. In view of the close similarity of this drug to atropine, which has not proved to be of particular value in these conditions, the usefulness of dibutoline in the foregoing spastic disorders is somewhat questionable.

The toxicity of dibutoline sulfate is low, and its margin of safety is wide. The chief side-effects are transient xerostomia and moderate diminution of ocular accommodation. No significant tachycardia or alterations in blood pressure have been observed. As with all agents of this class, dibutoline sulfate is contraindicated in patients with glaucoma, prostatic hypertrophy or other obstructions at the neck of the bladder, pyloric or duodenal obstruction, and stenosing peptic ulcer.

Dosage.—Dibutoline sulfate is administered only by subcutaneous or intramuscular injection. Dosage must be individualized according to the response of the patient and the appearance of side-effects. The usual dose by either parenteral route is 25 mg. This may be repeated three or four times daily as indicated and tolerated.

Applicable commercial name Dibuline Sulfate

Merck Sharp & Dohme Research Laboratories Division of Merck & Co, Inc, cooperated by furnishing scientific data to aid in the evaluation of dibutoline sulfate

Fumagillin.—An antibiotic elaborated by strains of Aspergillus fumigatus.—The chemical structure of fumagillin has not been determined.

Actions and Uses.—Fumagillin, an antibiotic used clinically as an amebicide, is highly active in vitro and in vivo against Entamoeba histolytica and some nonpathogenic strains of ameba. The drug has no effect on fungi or bacteria; hence, oral therapy is not complicated by overgrowth of monilia or other alterations in the flora of the gastrointestinal tract. In contrast to certain other antibiotics used in amebiasis, fumagillin exerts a direct lethal effect on E. histolytica rather than suppresses bacteria essential to its proliferation. The excretion and metabolic fate of fumagillin are imperfectly known. However, the fact that systemic side-effects do occur indicates at least partial absorption of this antibiotic.

Fumagillin may be used for the treatment of intestinal amebiasis; it has no effect in the extraintestinal form of the disease. On the basis of current evidence, it is considered about as effective as oxytetracycline or older drugs such as the iodinated compounds and the arsenicals. The cure rates reported after a course of therapy with fumagillin vary from 55 to 95%. It is believed that the latter figure could be approached more frequently if adequate precautions against reinfections were observed. Therapy cannot be considered successful unless at least two successive stool examinations are negative for motile ameba (trophozoites) and/or cysts. When extraintestinal amebiasis is present or suspected, fumagillin should not be used Therapy in such cases should be restricted to agents known to suppress this form of the disease

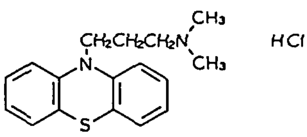
Side effects are frequently encountered during therapy with fumagillin, especially at high dosage levels Although they are sometimes sufficiently troublesome to require discontinuation of therapy, they are seldom serious and are usually reversible Among these side-effects are abdominal cramping and an epigastric burning sensation, diarrhea, anorexia, nausea and vomiting, headache, vertigo, and a vesicular type of skin eruption, which may be followed by mild desquamation Fumagillin has also been implicated as a possible causative agent in a few cases of neutropenia Until the possible adverse effects of this antibiotic on the hematopoietic system can be more thoroughly elucidated, peripheral blood cell counts are a wise precaution during prolonged therapy

Dosage—Fumagillin is administered orally in doses of 40 mg a day in four divided doses over a period of 10 to 14 days In more resistant cases, maximum daily doses up to 60 mg may be tried, but this dosage level may be associated with increased toxicity For children and severely debilitated patients, dosage should be calculated on the basis of age and weight

Applicable commercial name Fumidil

Abbott Laboratories cooperated by furnishing scientific data to aid in the evaluation of fumagillin

Promazine Hydrochloride—10-(3-Dimethylaminopropyl)phenothiazine hydrochloride—The structural formula of promazine hydrochloride may be represented as follows



Actions and Uses—Promazine hydrochloride is identical in chemical structure to chlorpromazine hydrochloride, except that it lacks the chlorine atom on the ring structure The general pharmacological properties of these two phenothiazine derivatives are likewise very similar, the chief difference being a lower acute toxicity with promazine after oral and parenteral administration to experimental animals

Promazine hydrochloride is used in the same manner as chlorpromazine hydrochloride for the treatment of acute neuropsychiatric agitation It effectively allays the apprehension and anxiety that accompany various types of acute psychoses, it is also reported useful in the management of such alcohol-induced syndromes as delirium tremens, acute hallucinosis, and tremulousness On the basis of currently available evidence, promazine appears to be essentially equivalent to chlorpromazine as a neuropsychiatric agent It has not been studied for a sufficiently long period to warrant its routine use in chronic mental disturbances, nor has it been evaluated as an antiemetic agent

Preliminary reports indicate that some of the more serious toxic manifestations of chlorpromazine have not yet been encountered with promazine In view of their close structural relationship, however, it is possible that any of the untoward reactions attributed to chlorpromazine could occur after promazine therapy Jaundice and hypoplastic anemia have not been reported, but transient leukopenia, agranulocytosis, and convulsive seizures have been observed in a few patients These side-reactions, as well as less serious side-effects such as orthostatic hypotension and undesirable drowsiness, occur with about the same frequency as with chlorpromazine Thus it is impossible to assess with finality the ultimate toxicity of promazine as compared with chlorpromazine Until more clinical experience has accumulated, both should be administered with the same degree of caution (See the monograph on chlorpromazine hydrochloride in New and Nonofficial Remedies)

Dosage—Promazine hydrochloride is administered orally, intramuscularly, or intravenously Dosage is *highly individualized depending on the severity of* symptoms and the degree of response Whenever possible, the oral route should be employed, since parenteral administration enhances the possibility of orthostatic hypotension As a general guide, total daily doses ranging from 25 to 300 mg may be employed If the response is not satisfactory, doses up to a maximum of 1 Gm a day may be tried In all cases, the smallest effective dose should be used

Applicable commercial name Sparine Hydrochloride

Wyeth Laboratories Division of American Home Products Corporation cooperated by furnishing scientific data to aid in the evaluation of promazine hydrochloride

Mumps Orchitis—There is little to be gained from the routine use of cortisone acetate in treatment of the minimally involved testicle Control patients and treated patients revealed no difference in their response to therapy, either subjectively or objectively, and all were clinically well within 3 to 4 days It does seem justified, however, to treat patients who have moderately severe or severe orchitis with this hormone if certain factors are kept in mind As in many other conditions where cortisone acetate is of benefit, the principal good derived is due to the antiphlogistic action of the hormone as the drug exerts no direct action on the causative organism Therefore, adequate dosage is important and, in particular, a sufficiently prolonged course is necessary to cover the ordinary period of the inflammatory process in the testicle if a clinical relapse is to be avoided There is no evidence to show that the natural course of orchitis is shortened by the use of cortisone acetate With these limitations and factors in mind, moderate to excellent symptomatic relief for the patient is to be expected—Lieut Col E S Stenberg Jr and Col W C Berry, M C, U S Army, The Use of Cortisone in the Treatment of Mumps Orchitis, *United States Armed Forces Medical Journal,* October, 1956

COUNCIL ON FOODS AND NUTRITION

The following paper was presented at the symposium, 'The Relation of Proteins and Amino Acids to Human Nutrition,' in Los Angeles, May 21, 1956 This symposium was sponsored by the Council on Foods and Nutrition, with the cooperation of the Los Angeles County Medical Society and the School of Medicine, University of California at Los Angeles This report is the first of the series After publication of the sixth and final report, this series will be available in monograph form

PHILIP L WHITE, Sc D, *Secretary*

ROLE OF THE DIGESTIVE TRACT IN THE UTILIZATION OF PROTEIN AND AMINO ACIDS

E S Nasset, Ph D, Rochester, N Y

Report to the Council

The modern renaissance in the study of the chemistry and physiology of the proteins is vigorous, universal, and greatly significant for health Mulder the Dutch chemist, was profoundly prophetic in 1839 when he coined the term 'protein to denote the primary importance of these compounds for the animal organism [1] The very fact that this symposium is being held more than a century later is additional evidence of the continuing and intense interest in the proteins and their special and increasing importance in nutrition

In the United States World War II evoked considerable interest in nutrition as it applied to the feeding of servicemen and industrial workers In Europe, whole nations were placed on restricted rations, and much scientific planning was required to devise adequate diets with only a limited quantity and variety of foods Probably the most successful of the rationing schemes was the one used in the United Kingdom On the continent as the war progressed, it became necessary to plan emergency feeding of half-starved civil populations as were found in The Netherlands, as well as the soldiers who, as prisoners of war, had been neglected by the enemy The most significant facts to come out of these experiences were that vitamin deficiencies occurred rarely and that the prevalent protein deficiencies could be remedied by the administration of large amounts of protein in the form of an aqueous suspension of dried milk and dried eggs Many experts assumed that the semistarved person would be unable to digest protein and would require a protein hydrolysate to initiate his realimentation The sheer size of the task of rehabilitation prevented the widespread use of hydrolysates, and from necessity, the discovery was made that even the severely undernourished and emaciated person could tolerate large quantities of protein [2]

Another important factor in the immediate postwar activity in the study of protein metabolism was the commercial availability of the crystalline essential amino acids Prior to this time, much of the research had been devoted to a determination of the amino acid requirements for growth This was true, in part, because the investigator frequently was obliged to isolate some of the amino acids from natural sources He was not keen, therefore, to give them in large amounts, hence he often confined his feeding experiments to the small, rapidly growing animals

Digestion and Absorption of Proteins

In 1947 a project was begun in the University of Rochester laboratories to establish the essential amino acid requirements for the maintenance of nitrogen equilibrium in the adult male rat In order to keep the intake of calories and nitrogen constant, the animals were fed a synthetic diet by means of a stomach tube twice daily Each essential amino acid in turn was reduced in amount until it became the limiting factor in the utilization of the total nitrogen of the diet From the data on nitrogen balance obtained, it was possible to compute individually the essential amino acid requirements under specified conditions [3] With this information in hand, a new amino acid mixture was designed to provide the essential amino acids in the proportions indicated by the individual determinations Feeding trials with this new mixture showed it to be inferior to isonitrogenous quantities of either whole egg protein or a mixture of amino acids that simulated whole egg in essential amino acid composition [3A] This disappointing result was an important stimulus for the work on protein digestion that forms the basis for the present paper

Intact Protein Absorption—The digestion and absorption of proteins have been investigated over a long period of time Voit and Bauer [4] introduced egg albumin solutions into the loops of the jejunum in the cat and observed that 15 to 45% of the protein disappeared in one to four hours Heidenhain [5] discovered that 30 to 40 ml of homologous serum placed in an isolated loop of the jejunum of a dog disappeared in less than an hour Serum that was concentrated by removal of water was also completely absorbed In this connection, it is pertinent to point out that the juice secreted by the intestinal mucosa does not contain a proteinase, hence it is not likely that the serum proteins were hydrolyzed The family of peptidases secreted in the succus enteri

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From the Department of Physiology, University of Rochester School of Medicine and Dentistry cus, first described as erepsin,[5] can act only upon peptide substrates and particularly upon those resulting from the action of gastric and pancreatic proteinases. The work of Murlin and co-workers[6] demonstrated hypoglycemia under some conditions when insulin was placed in a Thiry-Vella loop of the small intestine. Since the characteristic hypoglycemic action of insulin depends upon its molecular integrity, the results of Murlin and co-workers clearly show that insulin can pass the mucosal barrier as an intact protein. Recently Gruskay and Cooke[7] demonstrated that infants normally absorb small amounts of unchanged egg albumin and that, during recovery from diarrhea, the absorption may be increased five-fold and become an important factor in sensitizing the infant to egg albumin. The evidence is conclusive that, under special conditions, the intestinal mucosa absorbs protein molecules unchanged.

Amino Acid Absorption.—A preponderance of evidence supports the view that food proteins normally are completely hydrolyzed to their constituent amino acids prior to absorption. The ingenious experiments of Abel and associates[8] with "vividiffusion" showed without doubt that ingestion of protein resulted in a greatly increased concentration of diffusible amino acids in the circulating blood. They described a nonprotein fraction thought to be composed of peptides but offered no evidence that this fraction had its origin in the intestinal lumen. Dent and Schilling[9] attempted unsuccessfully to demonstrate a rise in peptides of portal blood after feeding casein, beef muscle, and human serum albumin to dogs. The total amino acid concentration rose in portal blood as a result of feeding these proteins, but the relative concentrations of the various amino acids did not reflect differences in the nature of the ingested protein. In gastrectomized dogs, the results of feeding homologous protein in the form of whole plasma were quite different in that the concentration of amino acids in the portal blood failed to rise. Postmortem examination of one of the animals showed that the plasma administered by means of a stomach tube had disappeared completely from the digestive tract. Dent and Schilling suggested that homologous plasma protein may be absorbed intact, thus lending support to the earlier work of Voit and Bauer and Heidenhain.

The work of Wilson and Lewis[10] demonstrated that various individual free amino acids tested singly disappeared from the lumen of the intestine at different rates. D-Alanine was absorbed to the extent of 77 mg. per 100 Gm. of body weight per hour over a three-hour period; L-leucine was absorbed at about 56% of this rate. The dosages of amino acid given to the rats used in this work were rather large; they varied from approximately 200 to 450 mg. per 100 Gm. of body weight, which corresponds to a dosage of 140 to 315 Gm. for a man who weighs 70 kg. (154 lb.). According to Doty and Eaton,[11] histidine was absorbed at a rate of 57 mg. per 100 Gm. of body weight per hour in the rat over a two-hour period, and lysine was absorbed at 37% of this rate. The dosages of histidine and lysine were also rather high.

Hober and Hober[12] concluded that amino acids are transported across the intestinal mucosa by a special mechanism. The rates of amino acid absorption were compared with those of nonphysiological but inert organic compounds. In all experiments, the amino acids were absorbed much faster than the comparison compounds despite the fact that the effective molecular volumes of the comparison compounds were smaller than those of the amino acids. These investigators also reported differences in absorption among several amino acids; for example, glycine was always absorbed faster than either valine or alanine.

The work of Gibson and Wiseman[13] indicates another interesting aspect of amino acid absorption. These investigators introduced solutions of single racemic amino acids and found that the L-isomer was absorbed 1.6 to 6.0 times faster than the D-isomer. Apparently the natural isomer can compete to better advantage for a place in the transport system. Their results also indicate some differences in rates of absorption among the various L-isomers.

The absorption of a particular amino acid may be decidedly altered in the presence of one or more other amino acids. Pinsky and Geiger[14] reported that the absorption of L-histidine in the rat is greatly reduced in the presence of L-tryptophan. The absorption of L-tryptophan, however, did not appear to be affected by the presence of histidine. The absorption of neither one of these seemed to be significantly altered by the presence of either DL-phenylalanine or L-arginine. This experiment demonstrates very clearly that the data obtained for the absorption of individual amino acids may not be applicable to mixtures, even though they contain no more than two or three different amino acids. When the intestine contains all of the amino acids normally found in food proteins, data for the absorption of single amino acids cannot be used to predict the behavior of the mechanism for absorbing amino acids.

On the basis of this brief review, the following tentative conclusions are made: 1. Certain proteins such as homologous plasma proteins, egg albumin, and insulin may be absorbed in varying amounts without undergoing the usual enzymatic hydrolysis in the digestive tract. 2. The naturally occurring isomers of the common amino acids are preferentially more rapidly absorbed than the D-isomers, which fact strongly suggests active transport of the L-isomers across cell membranes. 3. The rates of absorption observed for single amino acids are not applicable to complex mixtures. 4. The amino acid transport system has a limited capacity, and the amino acids in a mixture compete for places in this system.

Protein Metabolism

Do any or all of these facts help to explain any of the puzzling phenomena in protein metabolism? The differences in rates of absorption, if real, could be interpreted to mean that differences in biological values of proteins might be caused by unequal supplies of the essential amino acids at the sites of synthesis. The work of Elman[15] on intravenous feeding demonstrated that all of the essential amino acids had to be injected simultaneously in order to attain the maximum favorable effect upon nitrogen balance This concept was confirmed by Geiger,[16] who showed that tryptophan supplied daily to rats 12 hours after they had consumed a diet deficient in tryptophan was ineffective as a supplement to the deficient amino acid mixture

TABLE 1 —*Nitrogen in Contents of Gastrointestinal Tract*

Test Meal	Segment of Gastrointestinal Tract	No of Dogs	Total Nitrogen Gm Mean		Total Nitrogen Gm Standard Error
Egg albumin*	Stomach	3	3.087	±	1.199
	Duodenum		0.184	±	0.017
	Jejunum		0.391	±	0.025
	Upper ileum		0.396	±	0.022
	Lower ileum†		0.336	±	0.040
Nonprotein	Stomach	4	0.071	±	0.027
	Duodenum		0.068	±	0.014
	Jejunum		0.090	±	0.030
	Upper ileum		0.109	±	0.036
	Lower ileum		0.186	±	0.063
Zein	Stomach	2	1.234	±	0.032
	Duodenum		0.184	±	0.113
	Jejunum		0.408	±	0.127
	Upper ileum		0.459	±	0.030
	Lower ileum		0.369	±	0.319
Effect of Absence of Pancreatic Juice					
Egg albumin§	Stomach	2	3.274	±	0.030
	Duodenum		0.665	±	0.016
	Jejunum		0.146	±	0.051
	Upper ileum		0.236	±	0.114
	Lower ileum		0.187	±	0.096

Grams of nitrogen given dog 1 7.4 dog 2 4.7 dog 3 3.3
† 2 dogs examined
Grams of nitrogen given dog 1 2.9 dog 2 5.3
§ Grams of nitrogen given dog 1 4.7 dog 2 4.7

The results of Elman and Geiger as well as the failure to achieve the 'ideal' amino acid mixture led me and my co-workers to look elsewhere for more information Dogs were fed various test meals and were killed for chemical examination of the contents of their digestive tracts These analyses included the determination of 16 microbiologically available amino acids[17] An egg albumin test meal was used as representative of a complete protein of high biological value, and zein served as the test meal representative of an incomplete protein of low biological value A mixture of sucrose and lard served as the nonprotein control test meal Approximately 1½ hours after being fed the test meal, the animal was killed Ligatures were quickly placed at the cardia, pylorus, ligament of Treitz, and at the upper quarter, midpoint, and terminus of the remainder of the small intestine These ligatures delimit the stomach, duodenum, jejunum, upper ileum, and lower ileum In two dogs all pancreatic ducts had been ligated several weeks prior to the feeding experiment

The results (table 1) indicate that the total nitrogen recovered from various parts of the small intestine remained constant in the normal animal regardless of the protein in the test meal The feeding of the nonprotein meal resulted in progressively greater amounts of nitrogen recovered from the segments distal to the pylorus, but at most the quantity was no more than one-third to one-half of the amount recovered after feeding protein The amount of nitrogen ingested does not affect appreciably the amount of nitrogen recovered from the small intestine Excess ingested protein is retained in the stomach and released gradually into the duodenum The rate of emptying of the stomach is governed by reflex an hormonal mechanisms rather than by the quantity o food ingested

Table 2 is an abbreviated summary of the amin acid analyses The results are expressed as moles o amino acid per mole of threonine, which was selecte as a basis of comparison because it seems to be presen in most proteins and is usually neither the most no the least abundant of the essential amino acids O this basis, the ingested proteins, egg albumin and zei display marked differences A comparison of the mol ratios of isoleucine, leucine lysine, tryptophan, an glutamic acid illustrates this point At first glance, i would seem that such differences in compositio would betray the presence of either of these protein in any segment of the digestive tract Inspection o the results of amino acid analysis of gastric content reveals that this does hold true, with certain reservations In the jejunum, however, the distinguishin characteristics have been lost, and without a labe it would be difficult to identify the test meal associate with either column of table 2 What is perhaps mor astonishing is the fact that a nonprotein test mea results in a jejunal amino acid mixture that ca scarcely be distinguished from those derived from protein test meals The ratios for the duodenum li between those of the stomach and jejunum, where those for the ileum duplicate essentially those for th jejunum It is difficult to escape the conclusion tha the ingestion of a meal, whether or not it contains an protein, results in the transfer of appreciable quantitie of nitrogenous material into the lumen of the smal intestine What can be the nature of this 'endogenous nitrogen? At this point it is well to recall that the hydrolytic enzymes are themselves proteins that th digestive juices also contain mucoproteins, and tha the intestinal mucosa is continually being desquamated Possibly these and other sources also ma provide enough endogenous protein to dilute the amino acid mixture in the intestine sufficiently t obscure any amino acid peculiarity characteristic o food protein

TABLE 2 —*Moles of Amino Acid per Mole of Threonine in Tes Meal Proteins and Contents of Gastrointestinal Tract*

Amino Acid	Moles in Ingested Protein EA*	Moles in Ingested Protein Z†	Stomach EA	Stomach Z	Stomach NP‡	Jejunum EA	Jejunum Z	Jejunum NP
Arginine	0.90	0.41	0.15	0.16	0.72	0.91	0.61	1.1
Histidine	0.44	0.41	0.05	0.05	0.35	0.27	0.31	0.8
Isoleucine	1.62	2.21	[illegible]	0.85	[illegible]	1.08	1.03	0.73
Leucine	2.05	7.17	2.71	3.36	2.06	1.45	1.69	0.8
Lysine	1.25	0.00	0.11	0.13	1.31	0.80	0.83	0.90
Methionine	1.04	0.61	0.30	0.07	0.31	0.22	0.28	0.1
Phenylalanine	1.28	1.04	0.56	0.22	0.62	[illegible]	0.49	[illegible]
Threonine	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0
Tryptophan	0.21	0.02	0.11	0.02	0.38	0.15	0.10	0.1
Valine	1.55	1.02	1.70	0.08	[illegible]	1.11	0.84	0.9
Aspartic acid	1.92	[illegible]	0.07	0.85	[illegible]	0.40	0.60	0.2
Glutamic acid	3.08	7.17	[illegible]	2.25	1.09	1.16	1.47	1.
Proline	2.00	3.59	0.06	0.21	0.67	0.56	0.71	0.6
Serine	2.29	2.91	1.08	0.47	0.96	[illegible]	1.30	1.5
Tyrosine	0.66	1.14	0.12	0.13	0.76	0.40	0.36	0.4

Egg albumin
† Zein
No protein

Protein from Digestive Enzymes—Table 3 gives the essential amino acid composition of five of the well-recognized enzymes produced by the stomach and pancreas The moles of amino acid per mole of threonine vary from a minimum of 0 04 for methionine in carboxypeptidase to a maximum of 2 03 for valine in amylase With this great variety of endogenous protein available, it is not difficult to imagine how the individuality of ingested protein may be lost

TABLE 3 —*Essential Amino Acids in Digestive Enzymes**

Amino Acid	Pepsin		Amylase		Trypsinogen		Chymotrypsinogen		Carboxypeptidase	
	Protein mM /100 Gm	mM /mM Threonine	Protein mM /100 Gm	mM /mM Threonine	Protein mM /100 Gm	mM /mM Threonine	Protein mM /100 Gm	mM /mM Threonine	Protein mM /100 Gm	mM /mM Threonine
Arginine	7 5	0 09	32 3	0 99	9 5	0 21	16 1	0 18	26 0	0 38
Histidine	7 1	0 08	25 2	0 77	10 9	0 24	7 4	0 08	20 6	0 30
Isoleucine	71 1	0 88	87 8	2 68	50 4	1 11	40 1	0 44	52 7	0 77
Leucine	76 8	0 90			51 9	1 15	75 2	0 82	64 1	0 94
Lysine	7 2	0 08	33 6	1 02	63 7	1 40	53 4	0 58	48 6	0 71
Methionine	12 1	0 14	14 1	0 43	7 1	0 16	8 0	0 09	2 7	0 04
Phenylalanine	42 3	0 50	61 2	1 87	20 0	0 45	23 3	0 25	40 0	0 59
Threonine	84 0	1 00	32 8	1 00	45 3	1 00	91 6	1 00	68 1	1 00
Tryptophan	11 5	0 14	32 8	1 00	18 1	0 40	27 5	0 30	16 7	0 25
Valine	62 8	0 75	66 7	2 03	69 2	1 53	85 4	0 93	41 9	0 62

* Block R J Unpublished data

How does a mixture of digestive enzymes compare in amino acid composition with some amino acid mixtures that have been used in nitrogen balance experiments? Table 4 shows such a comparison, and it is easy to see that the resemblance is not close Table 5 shows the result of mixing equal parts of the same mixture of enzyme proteins with either egg albumin or zein Such a mixing tends to make the two combinations resemble each other In table 6 these calculated results are compared with the actual results found on analysis of jejunal contents With a few exceptions, the agreement between "found and calculated' values is valid enough to lend support to the idea that, during the process of digestion, a great deal of endogenous protein is transferred into the lumen, is there hydrolyzed, and is recovered as amino acids mixed with the amino acids of the ingested protein This may be regarded as a homeostatic device that, within limits, assures the liver and other sites of protein synthesis a mixture of amino acids normally subject to a minimum of qualitative variation

TABLE 4 —*Moles of Amino Acid per Mole of Threonine in Various Amino Acid Mixtures*

	Complete Mixture*	New Mixture†	Safe Mixture‡	Enzymes§
Arginine	1 34	0	0	0 28
Histidine	0 50	0 25	0	0 22
Isoleucine	1 26	1 37	1 36	0 84
Leucine	1 76	0 73	2 00	1 03
Lysine	1 14	0 15	1 30	0 64
Methionine	1 24	1 58	1 75	0 14
Phenylalanine	1 76	0 65	1 73	0 58
Threonine	1 00	1 00	1 00	1 00
Tryptophan	0 22	0 13	0 29	0 33
Valine	1 49	0 92	2 17	1 01

* From Nasset E S and others Nitrogen Balance of Adult Rats Fed Diets Low in L— and DL—Threonine J Nutrition 45 173 (Oct) 1951 Simulates whole egg

† From Nasset [3A] Based on requirements individually determined

‡ From Rose W C and Wixom R L Amino Acid Requirements of Man J Biol Chem 217 997 (Dec) 1955 Twice minimum requirements for the adult man

§ From Block R J Unpublished data Equal parts pepsin amylase trypsinogen chymotrypsinogen and carboxypeptidase

Rate of Absorption of Amino Acids—Is there any evidence of great differences in the rate of absorption of the individual amino acids from intestinal contents? From experiments on the absorption of the individual amino acids, it may be concluded that such differences do occur The following relative rates of absorption may be computed from the data of Gibson and Wiseman[13] histidine, 6, valine, 3 5, phenylalanine, 3, methionine, 2 5, and lysine, 1 The data of Nasset and associates[17] are rearranged in table 7 to test whether these amino acids in a mixture that contains them all do, in fact, leave the lumen at such widely different rates It seems reasonable to suppose that if histidine, or any other single amino acid, were absorbed very rapidly, the contents should gradually become impoverished in this amino acid as they proceeded toward the ileum Conversely, the more slowly absorbed amino acids should accumulate, relative to the quantity of histidine, as the contents approached the ileum The data in table 7 do not support this idea Disregarding the stomach, where no absorption occurs, the relative concentrations of the five amino acids remain quite stable The last four amino acids are slightly concentrated with respect to histidine, but the relative changes are all of the same order and fail to reflect any differences among the four The relative concentrations of these five essential amino acids tend to remain fairly constant throughout the small intestine, and there is no reason to believe that the others would behave differently If this were not true, the effect in the blood stream could be comparable to administering a few amino acids at one time and a few more somewhat later This is the type of amino acid influx that has been shown by Elman[15] and by Geiger[16] to be inefficient for protein synthesis

TABLE 5 —*Moles of Amino Acid per Mole of Threonine in Mixtures of Test Meal Protein with Enzyme Protein*

	Enzymes*	Egg Albumin	50% Enzymes 50% Egg Albumin	Zein	50% Enzymes 50% Zein
Arginine	0 28	0 99	0 53	0 41	0 32
Histidine	0 22	0 44	0 30	0 44	0 28
Isoleucine	0 84	1 62	1 12	2 21	1 23
Leucine	1 03	2 03	1 39	7 17	2 76
Lysine	0 64	1 25	0 86	0 00	0 46
Methionine	0 14	1 04	0 46	0 61	0 27
Phenylalanine	0 58	1 28	0 83	1 54	0 85
Threonine	1 00	1 00	1 00	1 00	1 00
Tryptophan	0 33	0 21	0 29	0 02	0 24
Valine	1 01	1 55	1 20	1 02	1 01

*Equal parts pepsin amylase trypsinogen chymotrypsinogen and carboxypeptidase

Gastrointestinal Factors—In the figure are listed some of the gastrointestinal factors that may play a role in the utilization of protein, the basic physiology of the digestive tract enters prominently into this problem To a large extent, nutrition workers have acquired their knowledge of digestive processes from results of studies of isolated enzyme systems in vitro The classic idea of optimum pH for such enzyme systems leads to the conclusion that the digestive apparatus must be operating at low efficiency because the pH in the stomach (2-6) is often too high for optimum' pepsin activity, and the pH of the small intestine (4 5-6 5) is too low for 'optimum" activity of the pancreatic and intestinal enzymes Despite this paradox, the digestive enzyme mechanisms operate at much greater speeds in vivo than are realized in laboratory experiments in vitro

TABLE 6—*Moles of Amino Acid per Mole of Threonine in Contents of Jejunum After Various Test Meals*

	Egg Albumin		Zein		Nonprotein	
	Found	Calculated†	Found	Calculated	Found	Calculated
Arginine	0 91	[illegible]	0 61	0 32	1 12	0 26
Histidine	0 25	0 20	0 31	0 28	0 32	0 22
Isoleucine	1 05	1 12	1 03	1 23	0 73	0 84
Leucine	1 45	1 80	1 69	2 76	0 93	1 03
Lysine	0 80	[illegible]	0 83	0 46	0 90	0 64
Methionine	0 92	0 40	0 28	0 27	0 16	0 14
Phenylalanine	0 56	0 83	0 49	0 85	0 56	0 68
Threonine	1 00	1 00	1 00	1 00	1 00	1 00
Tryptophan	0 15	0 29	0 10	0 24	0 16	0 33
Valine	1 11	1 20	0 84	1 01	0 97	1 01

From Nasset and others [1]

† Assuming equal quantities of food protein and enzyme protein composed of equal quantities of pepsin amylase trypsinogen chymotrypsinogen and carboxypeptidase

The emptying of the stomach is obviously a very important factor in keeping the intestine supplied with just the right amount of material The dual nervous and hormonal control, represented by the enterogastric reflex and enterogastrone, respectively, is very well coordinated to prevent overloading of the duodenum

The sources of endogenous protein are the digestive secretions and the mucosal cells that are constantly sloughed Information on the quantity and composition of the various secretions is rather limited, but it is estimated that 50 to 100 Gm of endogenous protein material is transferred into the digestive tract of a human adult every day Of this not more than 10 to 15 Gm is lost in the stool The remainder is recovered and represents a large and extremely mobile protein reserve In a sense, therefore, all human beings are cannibals, and the usual concept of vegetarianism is a myth

TABLE 7—*Amino Acids Recovered After Feeding Test Meal of Egg Albumin**

	Histidine		Valine		Phenylalanine		Methionine		Lysine	
	mM	Rel Conc †	mM	Rel Conc	mM	Rel Conc	mM	Rel Conc	mM	Rel Conc
Stomach	0 030	1 0	[illegible]	5 2	0 073	7 3	[illegible]	6 0	0 023	2.3
Duodenum	0 0 3	1 0	[illegible]	3 2	0 091	1 7	0 038	0 7	0 105	2 0
Jejunum	0 099	1 0	0 398	4 0	0 200	2 0	0 078	0 8	0 286	2 9
Upper ileum	0 129	1 0	0 523	4 1	0 [illegible]2	2 0	0 099	0 8	0 396	3 1
Lower ileum	0 116	1 0	0 487	4 2	0 2[illegible]	2 2	0 111	1 0	0 328	2.6

* From Nasset and others [1]

† Relative concentration

This work is reported with full recognition of the basic and well-founded concepts of the essentiality of certain amino acids and the biological value of dietary proteins It is still considered impossible for the mammal either to synthesize essential amino acids or to avoid the unfavorable consequences of continued consumption of an incomplete protein The homeostatic mechanism here described probably serves to even out temporary irregularities in the dietary supply of amino acids and to prevent gross changes in the amino acid pattern of the portal blood This pattern in cells and extracellular fluid is easily unbalanced by administration of single amino acids,[18] which represents a very real hazard in the fortification of foods with amino acids

Summary

The ingestion of protein stimulates the digestive tract to secrete endogenous protein, which becomes mixed with the food protein to provide an amino acid mixture for absorption that remains relatively constant in composition Proteins of widely different amino acid composition and even nonprotein foods give rise to amino-acid mixtures in the small intestine that are similar The result of this mixing of amino acids in the lumen of the intestine may be to regulate rather closely the relative concentrations of the amino acids available for absorption

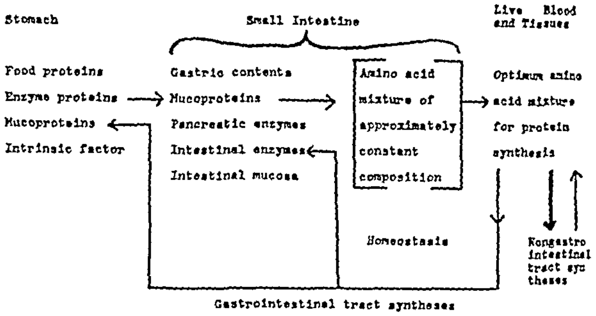

Diagram showing gastrointestinal role in utilization of protein

Nothing said here is intended to deny or to refute such basically sound nutritional concepts as the need for dietary essential amino acids or the differences in the biological values of dietary proteins

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COUNCIL ON MENTAL HEALTH

This is the last in a series of four articles prepared by members of the Committee on Alcoholism of the A M A Council on Mental Health The other articles appeared in THE JOURNAL *on Dec 29, 1956, Feb 16, 1957, and March 2, 1957*

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SOCIAL SETTINGS CONDUCIVE TO ALCOHOLISM

A SOCIOLOGICAL APPROACH TO A MEDICAL PROBLEM

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The sociological approach to alcoholism could be applied to such matters as diagnosis, epidemiology, rehabilitation, prevention, medical education, and the impact of institutional care In all these instances the attitudes and behaviors and the social structuring of human beings form an essential element in that which occurs Whether it be attitudes that prevent an alcoholic from coming into contact with a therapist, a difference between therapist and patient in relation to learned aspirations, inhibitions, and beliefs in what is "natural and good," or a specific set of cultural notions about drinking, the so-called sociological aspects can be not only relevant but even crucial for the emergence of different symptoms, different patient-physician relationships, different therapeutic results Naturally, this in no way detracts from the significance of other approaches During this period in our culture it does seem, however, that the sociological approach is more immediately germane to alcoholism than it might be to pneumonia, cataracts, or a broken leg

This presentation will be limited to illustrating the sociological approach, and consideration will be restricted to one application in the area of etiology The purpose is not to "explain alcoholism or present clinical techniques for therapy, or even to describe the condition sociologically It is to present one example of the sorts of data, the sorts of measurement, and the sorts of conclusion, that can stem from this social science approach and that may prove useful to the medical practitioner

Described sociologically, alcoholism is viewed as a behavioral phenomenon It is in one sense more effectively defined by sociology at this time than by other disciplines for the simple reason that it forms a unique syndrome, one not easily confused with any other, e g, unemployed, atheists, bachelors, Kansans, collegians, drug addicts It is largely the current lack of such uniqueness that has made psychological and physiological descriptions rather murky

As a sociological phenomenon, alcoholism will be described in terms of specified behaviors of the alcoholic and their degree of differentiation from comparable behaviors of others, these behaviors may be subdivided into such classifications as actions, attitudes, and group membership, the behaviors being patterned and repetitive The condition will also be described in terms of the patterned and repetitive behaviors of significant others responding to the alcoholic and his behaviors These also may be subclassified as above

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Whether one is studying the behaviors of the alcoholic or of those responding to him, two perspectives are of essential importance. One of these is sociocultural orientation: whether the condition or the afflicted individual is considered, it is always in terms of the specific cultural group. Therefore, in contrast to the usual medical orientation, the sociological analysis will never, except in terms of high-level abstraction, relate to alcoholism as a condition of Homo sapiens but always in terms of a specified sociocultural context, e. g., Greek alcoholism, upper-class Canadian alcoholism in those of English background, Mexican-Indian alcoholism.

The second perspective is that of time. This refers not only to time periods for a culture but also to time periods in the individual life history. For example, the behavioral deviations of an alcoholic must be viewed against his sociological development. If three individuals manifested approximately the same alcoholic behavioral deviations at age 45, it would not necessarily mean they were of the same subtypes of alcoholism from a sociological viewpoint (although from a legal or physiological viewpoint they might be extremely similar). One of the three individuals might never have taken on effectively the values, inhibitions, and aspirations of the culture; he might be called "undersocialized," and many so-called Skid Row types might be so described. A second might have taken on the culture in an unbalanced, even twisted fashion with excessive anxieties and guilts at one point and with apparent minimal aspirations at another; perhaps many so-called neurotic alcoholics would be of this type, and they could in this terminology be called "dissocialized." Still a third might have been socialized in relatively average fashion for his social milieu, but he might have left the group so that the particular social learning was unlearned and other, differing values and practices learned; certain emigrés and perhaps some isolated occupational groups may suggest representatives of such a "desocialized" category. Despite the manifest behavioral (and perhaps also physiological, psychological, legal, and other) similarities of three such persons in the late stages of alcoholism, they would represent decidedly different categories from a sociological viewpoint.

Some Common Behavioral Symptoms

Very briefly to describe some of the typical signs of the present-day alcoholic among white, Protestant males of northern European cultural orientation living in urban areas of the northeastern quarter of the United States, the following list might be offered. In each instance the behaviors, attitudes, or memberships are deviations from an average of the individual's own particular stratum within this large and complex population. Very roughly, these signs approximate a progression from the earliest to the last stages of the condition.

1. Compared to other persons of his appropriate social group, the alcoholic consumes more alcohol and does so more frequently. 2. He hides this consuming. 3. He consumes at times much more rapidly, often gulping. 4. He experiences periods of temporary amnesia. 5. He exhibits excessive deviations in behavior while using alcohol. 6. After the first drink he shows a loss of rational control over further consumption. 7. He develops excessive, new, and socially unacceptable explanations about his use of alcohol. 8. He may often imbibe when alone. 9. He may imbibe to "start off" the day. 10. Directly related to his use of alcohol, he begins to lose friends, family relationships, jobs, etc. 11. He attempts new ways of using alcohol (e. g., only wine, only every other day, only with particular persons) or occasionally stops all use for specified periods. 12. He seeks outside help. 13. He manifests rather extraordinary fears and resentments. 14. He indulges in "benders," prolonged periods during which intoxication blots out all socially expected and prescribed activities and relationships. 15. He may manifest psychotic episodes and certain physical stigmas. 16. He may hit both psychological and sociological bottom, now making no attempts to behave or to make rationalizations about his behavior that would fit any acceptable norm.

Alcoholism Etiology—General Considerations

Psychological factors are generally felt to be the critical item in explaining the initiation of alcoholic drinking, the early repetitive deviant drinking behaviors such as those discussed above. Alcohol is an anesthetic or depressant, and its action is approximately the same on all human central nervous systems. It is usually described as reducing the speed and accuracy of perception, slowing down reaction time, and diminishing tensions, anxieties, and inhibitions. These functions, however, may have markedly different impact upon differing personalities. The person who is noticeably shy or overly repressed or who appears to struggle with too heavy a load of self-imposed guilt is felt to be psychologically susceptible to the development of alcoholism. Nor is it considered necessary for such characteristics to be particularly marked at the ages of 17 to 23 years, a common period in the United States for initiation of the custom of drinking. Such features might remain fairly well masked through young adulthood. With increasing pressures of social expectancy (as interpreted by the individual) of marriage, parenthood, occupational or professional progress, menopause, or persistent situations calling for behaviors, achievements, or status that the person cannot meet without increased and unmanageable anxieties, the susceptibility will become increasingly marked. Alcohol might be reacted to with extreme behavior at the very onset of drinking at ages under 20 years, or the person might indulge in a socially controlled fashion for several years before showing the drinking deviations characteristic of the alcoholic. In the latter case the deteriorating sociopsychological function of excessive intake of alcohol may appear etiologically of considerable importance for final emergence of alcoholism. On the other hand, in the noticeably neurotic person of 19 or 20 who with the onset of drinking begins to show deviant behaviors, the etiological significance of the alcohol is felt to be less important.

Basically, then, one set of questions about etiology concerns the factors lying behind the emergence of those personality sets characterized by what are called excessive feelings of anxiety, guilt, inadequacy, and he like It is generally agreed that these feelings are earned, as also are the more or less acceptable ways of handling them The social value systems from which he individual of necessity gains his interpretations of self and of ideal, the form of social structure hrough which these systems come to him, the sanctions that direct and reinforce his learning, and the eality situations through which he lives—all these clearly are essential parts of his learning However, hat these social factors determine the emergence of his or that particular anxiety or make socially acceptable adjustment impossible—this is a different matter entirely The unique individual experiences, environment, and learning processes can provide such an elaborate, even enormous range of individual developments that psychological factors are almost certainly of the same general order of significance as are he sociological ones Lying behind both of these may well be physiological differences that would tend to accentuate certain types of intensities of behavioral differences (whether socially acceptable or not) and hus be significant for so-called neuroses in one society and for more normal life patterns in another

On this very basic level, physiological, psychological, and sociological factors are probably all of as yet unknown degrees of importance However, as one moves to the next level, greater discrimination is possible Granted that the individual is suffering somewhat more than the average member of his group rom anxieties, tensions, guilts, and feelings of inadequacy and further granted that he is introduced to the drinking of alcohol beverages, why does he become an alcoholic? The question becomes highly pertinent when it is noted that many such suffering persons do use alcohol beverages and do not become alcoholics Certainly the use of alcohol by itself does not cause alcoholism, since it is observed that only a small percentage of users (well under 10%) ever become alcoholics The fact that many unhappy, neurotic, or maladjusted persons use alcohol beverages and do not become alcoholic suggests that a etiology more specific than the commonly ascribed (and vaguely defined) psychological anomaly or maladjustment must be sought

Variation in Drinking Culture and Incidence of Alcoholism—Four Groups as Examples

On the sociological side there have developed in very recent years some hypotheses about specific conditions that may be viewed in terms of social and cultural terrains that are more and less favorable for he emergence of alcoholism They may even be interpreted as causative from some points of view The sociological approach is based upon study of the manifest behaviors, attitudes, things, and group-membership patterns that form a constellation centering upon the customary use of alcohol beverages within a specified society Collections of this sort of data, when classified, allow descriptions of the prevalence of more or less deviation from norms There are many sorts of deviation from norms of the constellation of behaviors that may be called the drinking custom in our society, e g, false labeling, icing the wine, bootlegging, drinking by a participant prior to a contest of skills Here we are interested in the deviations related more directly to the behavioral syndrome labeled alcoholism

One sociological question would be "Does this syndrome appear more frequently with sociological constellations of one sort than with those of another sort? The answer would appear to be an undoubted affirmative It is not possible in a paper of this length to do more than sketch some generalizations relevant to such studies in terms of rather extreme examples

First Example—The first example concerns a current American group in which the social functions of drinking are strikingly clear drinking is to draw the family together, to cement the bonds of larger group membership, to activate the relationship between man and deity This is understood by the participants The rules and procedures of drinking are about as ritualized as those of a university football game or a church service

Violations of the rules, or violations of propriety while drinking, are quickly and severely sanctioned, and all sanctioning roles (father, neighbor, community leader, occupational leader, elders, etc) join uniformly in such negative sanctions The custom does not show much differentiation by subsocieties or subclassifications of the group, although men, adults, and wealthy persons tend to drink more frequently The custom is learned from infancy, it is instilled at the time that basic moral attitudes are learned and is taught by the prestigeful members of the group (parents, ministers, elders) The custom is closely entwined with family and religious constellations No great emotional feeling about drinking as such is particularly noticeable there have never been experiences with Prohibition, there are no total abstinence movements, there is no Dionysiac cult or worship of drinking It is held emotionally as more significant than salt or chocolate, but there is no great excitement about it

Members of this group do sneer at other groups that exhibit drunkenness Two final comments First, all members of this society drink, they do so hundreds of times every year, they use beer, wine, and distilled spirits, second, all evidence points to the conclusion that emotional maladjustments in this group are at the very least as common as they may be in any segment of American society This group may be called Orthodox Jews Alcoholism is practically unknown [1]

Second Example—A second American group may be described as follows The social functions of drinking are rather vaguely and somewhat defensively described, they concern drawing people, both family members and also complete strangers, together, often for purposes of 'fun,' often to allow relaxation from (rather than as in the preceding case closer adherence to) moral norms There is only an archaic symbolism for drawing man closer to deity, and this refers to such a specialized situation that it is not even considered to be "drinking" The rules and procedures are on occasion rather specific, but also show enormous variability so that a given individual may follow one set of rules with his family, another with business or professional associates, and a third on holiday occasions and show even different patterns when away from the home town

Sanctions for violations are extremely irregular, ranging from accepting laughter to violent physical attack Parents, employers, priests, physicians, and other agencies of sanction are most uncertain sources, both in formal statement and in actual behavior, many of them avoiding the issue whenever possible The custom shows marked variations by segments and subsocieties of the group, again adults, men, and wealthy persons tend to drink more frequently Some, however, do not drink at all, use of alcohol by women and children is suspect, and certain occupations are ordered not to drink at all (although acceptance of this sort of rule is surely irregular)

The custom is generally learned between the ages of 15 and 20 and accompanies the time of the troublous diminution of parental controls (as contrasted to the characterization of the time of learning in the preceding group) Sometimes the learning stems not from parents, ministers, physicians, elders, and teachers but from other adolescents, sometimes on trains, in cars, or in commercial places The custom is not significantly entwined with family and religious institutions, although there may be one set of drinking practices related to the family There is great emotional feeling about the problem on the mass level as well as by individuals, feeling that has run rampant for generations Activating the custom, especially by the young, is often attended with feelings of guilt, hostility, and exhibitionism and may occur as a secretive practice insofar as parents or employers or elders are concerned

The final comments—perhaps three quarters of the males over 15 years of age and perhaps over one-half of the females over 15 years of age use alcohol beverages, there being not too much use of wine, relatively greater use of beer by men, and use of distilled spirits The variation in frequency of use is broad, mostly in the range of 25 to 200 times a year, although information on the subject is scanty Second, the incidence of emotional and psychological disturbances is probably not exceptionally high, it may well be average or even less This group may be called the United States American of the northeast quarter of the nation —Protestant, middle-class, urban, white, from Anglo-Saxon background of three or more generations in this country Alcoholism certainly is not rare in this group Perhaps 3 to 7 of every 100 users of alcohol and five or six males to every female, most of them being between 35 and 55 years of age, are alcoholics

Third Example —A third social milieu, characteristic for perhaps a million and a half Americans, can be described as follows In this group the social function of drinking is officially stated to be (*a*) nonexistent and (*b*) if drinking occurs it is held to be disruptive, deteriorating, and disgusting The actual social function, among those who do drink, can only be stated in terms of those who do get together and imbibe, for them it is probably an important means for establishing their identity (as different) among themselves and for reinforcing adhesion of such a coterie Unless the total group should change its major viewpoint and practice (total abstinence) the social functioning of drinking can only be in the area of deviation or even departure from the group, it may allow one type of bridge to members of other groups and thus serve as a channel through which other sorts of change (business, politics, arts, etc) might be introduced

Functions of drinking for the individual will loom much larger than social functions when this group is compared to the other two Rules and procedures for drinking will be borrowed from other cultural milieux, by definition they cannot be home-grown products and cannot be accepted as rules and procedures by the group as such but only by the drinking individuals There are no sanctions for drinking and, only in one limited sense, against drinking (no matter how it is activated, by whom, when, in whatever manner, etc) —it is taboo

There is probably a great deal of variation (for which there is no evidence) in the practice of drinking according to the heterogeneous extrasocial models of this behavior, according to individual participants, and according to any sorts of differentiation that exist within the group (e g , wealth, occupation, location, educational achievement) The practice (it is only a custom in a most limited sense) is learned, insofar as the group is concerned, from improper, deviant members of the group, in hiding or away from the area The practice is at odds with at least the official position of every other institution or way of the group There is great emotional feeling against the practice Members of the group feel superior to groups that do drink and equate drinking with drunkenness, atheism, crime, disease, poverty, and immorality in general There is very little evidence about the extent of the practice Perhaps 25% of the men and 6 or 7% of the women should be counted as users of alcohol I know of no evidence about the prevalence of emotional disorders, but I have no reason to believe that it is high A guess might be allowed to the effect that it was lower than some abstract United States average From indirect knowledge and limited data, it would appear that the incidence of alcoholism in this group, the American Mormons, is very low It would also appear that the incidence of alcoholism among drinkers in this group is very high, i e , more than 3 to 7 out of every 100 drinkers [2]

Fourth Example —The fourth and last illustration is not drawn from the United States In this primitive South American society the social function of drinking alcohol beverages is so well understood that, somewhat paradoxically, it would be hard for the members to explain it—just as the social functions of eating in our society are probably for most of us beneath the level of conscious realization The social function of drinking for the group being described is getting together, enjoying life, identifying all sorts of achievements, events, and symbolic values, fulfilling all sorts of socially approved ways, enhancing status, and just 'being a human being' The rules and procedures are understood and activated by all Again the men tend to drink more, although perhaps not more frequently, wealth is viewed differently, and differences in wealth are less marked so that this comparison, noted in the other three groups is probably of less significance

Certain leaders of the group, comparable perhaps to our status of mayor, drink more frequently The society does not manifest many subsocieties or categories, and drinking differences on this level may not exist According to reports there is little violation of rules and procedures, and there are almost no instances of deviations from expectancy except by some individuals who were away for a few years (e g, in military service) Deviation would consist of drinking at the wrong time, drinking alone, etc

The custom is learned from childhood, and the practice itself generally takes place in full public view It is a practice almost inextricably entwined with major ways of life and social institutions In terms of the previous examples, there is not great emotional tension or excitement about drinking, certainly, feelings of guilt, hostility, anxiety, and the like are absent Apparently everybody drinks, both beer and distilled spirits They drink perhaps 100 to 200 times a year Drinking to the point of and beyond intoxication is a common if not the usual practice Alcoholism is apparently unknown, although, among those who have for a while been in the armed services or in industries in the big cities, the condition has been heard of, no word for such a condition exists in the language There has been no survey of the prevalence of emotional disorders (because the culture is so different from western civilization, many diagnostic labels and behavioral symptoms would hardly apply), but one feels from the descriptive material that, if a rate were established, it might be lower than for the three groups previously discussed [3]

Comment

These four examples, clearly oversimplified and often without sufficient data, serve to illustrate the view that there are various sociological "terrains' for the emergence of alcoholism and that the differences are significant for the greater or less prevalence of the condition They may help to illustrate the point that the background psychological factors considered important for alcoholism may not mature into that condition if the cultural conditions are negatively structured for such a development It is perhaps not unlikely for a Mormon woman for 45 years an average participant in that community to develop emotional problems, neurotic symptoms, or the like It is quite unlikely for her to adopt the use of alcohol to mitigate or mask such problems For the emotionally upset Orthodox Jew, such a development is even more unlikely For him or her there are such positive moral, religious, and family group values attached to use of alcohol that alcoholic behaviors would be similar to a Christian's adoption of the behavior of smashing altars as a means of gaining relief from guilt and anxiety Excessive eating, gambling, drug addiction, or compulsive work habits would be more likely channels for expressing symptoms in the case of the individual brought up with a well-instilled belief in the symbolic and sacred character of using alcohol beverages

On the other hand, for the young Mormon who is rebellious, who strongly rejects the controls of parents, church, neighbors, and the like, who can find in the larger society that surrounds Mormonism opportunities to achieve financial, occupational, esthetic and recreational satisfactions, and who needs to exhibit his new individual freedom, the use of alcohol beverages is a dramatically useful tool Unequipped with rules, models, sanctioning agents, realistic knowledge, and appropriate restraints or directions from related institutions about drinking but fully equipped with rebelliousness, many guilt feelings and anxieties, and needs to impress his newly found associates with non-Mormonism, especially as that means activation of what he has always known to be vices, this man is probably an excellent prospect for alcoholism A converse proof of the theory that the social situation of learning to drink is important for the appearance or nonappearance of alcoholism would call for a study of such situations among alcoholics no matter what group they came from Ullman's studies on this matter [4] certainly reinforce the theory

Lest the reader think that these social factors are being described as sufficient causes, let me say that there are rebellious Mormons who drank and did not become alcoholics There are probably cases of Mormon women who never left the community and who did become alcoholics Furthermore, the illustrations presented are of an extreme nature They are here used to indicate the nature of relevant sociological factors In most instances the impact of such phenomena will not be so definite The cultural and social background will not be as consistent as that of Orthodox Jew or Mormon For example, in almost all groups in the United States, women are so brought up, drinking by women is so sanctioned, and drunkenness in females is so punished that, even for members of the same group, alcoholism is less likely to appear among women than among men Put in different terms, other things being equal we would expect greater personality problems or more anomalous social experiences in the cases of 100 women alcoholics than among 100 alcoholic men

This discussion of a sociological aspect of alcoholism etiology is merely illustrative There are other sociological formulations that may help to explain the emergence, form, extent, accompaniments, etc, of this condition The purpose of this presentation is to indicate the utility of sociological data and methods for more effective understanding of some of the unanswered, troublesome questions faced by medical men In this instance, why are such differential rates of alcoholism found in different sociocultural groups? Physiological, psychological, and pharmacological approaches alone do not answer this question effectively

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PROSTATECTOMY

Although prostatectomy is performed for either benign or malignant disease of the prostate, Cline[1] emphasizes the fact that the operation should not be done on patients with benign hypertrophy unless there is definite evidence of obstruction at the neck of the bladder accompanied by symptoms of urinary difficulty and in most cases residual urine. When such a condition develops, operation should not be delayed. Since a number of operative approaches are now available, each with its ardent enthusiasts, it has become necessary to establish some criteria for a successful operation. Bergman and co-workers[2] based their criteria for a successful operation on the immediate postoperative results, but others believe that long-range results must be considered in order to get a true picture of the relative success of a given procedure.

The first approach to be widely used was suprapubic or transvesical prostatectomy. Wormley[3] prefers this approach for benign prostatic enlargement if the hypertrophy is intravesical and the estimated weight of the prostate exceeds 50 Gm. This method has the advantages that the technique is relatively easy, the gland can be easily removed, bleeding in most cases is easily controlled, and the death rate of about 3% is as low as that associated with any other approach except the transurethral method. The end-results in most cases are excellent. Improvements in the technique of this operation have kept its popularity alive. Those who favor some other approach point to the following disadvantages: greater postoperative pain and shock (proponents claim that modern treatment of these conditions makes this an unimportant consideration in view of the long-range advantages), urinary leakage, and severe bladder spasm. Boyd,[4] an ardent enthusiast for suprapubic prostatectomy, reports only 2 postoperative deaths in a series of 100 cases. Both deaths were due to heart disease.

Wormley advises the perineal approach when the patient has calculous prostatism, and when the hypertrophy is intraurethral rather than intravesical. It has the advantages of a low death rate and minimal postoperative shock (hence it is preferred for patients who are poor surgical risks), and it offers dependent drainage and a more direct approach (an especial advantage in obese patients). On the other hand the operative technique is more difficult, there is danger of injuring the rectum, and postoperative incontinence of urine and impotence are more common than with the suprapubic approach.

The transurethral method is preferred for small sclerotic glands, median bar, inoperable cancer, intraurethral hypertrophy, and small median and lateral lobe enlargements.[3] This operation also has a low mortality rate and can be used on patients who are poor surgical risks, it can be performed in most cases with minimal shock to the patient, who can usually be discharged from the hospital less than eight days after operation. It has the disadvantage that recurrences are common, because it is difficult by this approach to remove the hyperplasia completely, and delayed hemorrhage, continued pyuria, and urethral stricture are the more common postoperative complications.

Another approach to the prostate is the retropubic method. Nelson[5] prefers it because he believes that it reduces the incidence of complications seen with the other three methods. It can be used on practically all patients, whether the pathological change is benign or malignant. Atherton and Atherton[6] prefer this approach when the patient has a cancer plus benign hypertrophy. Taylor and co-workers[7] compared the results of prostatectomy with the suprapubic and the retropubic approach and concluded that the latter gave better control of bleeding, fewer postoperative fistulas, smoother convalescence, and lower postoperative mortality. Klinger[8] prefers this method because, in addition to these advantages, the operation is performed under direct vision and is completely extravesical, healing is rapid, there is early resumption of voiding and absence of urinary drainage, the urine rapidly becomes clear, and the operation does not result in impotence. Watts[9] states that, like the other methods, this approach has its drawbacks, chief among which is difficulty closing the prostatic capsule after removing the gland. Others believe that the development of osteitis pubis is a troublesome complication with this method. Watts has described a modification that combines the advantages of the retropubic and suprapubic approaches, as he believes these are generally to be preferred to the perineal or transurethral route.

It can be seen that each of the four methods of removing the prostate has its adherents. Well-trained urologists are now competent to handle all four procedures, and the decision on which method to use in a given patient depends on the type and character of the protatic obstruction.

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ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

First Session, 85th Congress

Loans to Nonprofit Hospitals

Representative Poage (D, Texas), in H R 1979, would authorize the Secretary of Health, Education, and Welfare to make loans for the construction of nonprofit hospitals Loans would bear an interest rate of not more than 3% and would have to be repaid in not more than 30 years The appropriation of 50 million dollars would be authorized This bill was referred to the Interstate and Foreign Commerce Committee

Hill-Burton Funds

Funds for Mental Health Center or Clinic—Senator Mundt (R, S D), in S 230, has introduced a measure which would make eligible for Hill-Burton hospital construction funds 'a nonprofit corporation or association which receives, from the State in which any such corporation or association is located or from any political subdivision of such State, any funds for the operation of a mental health center or clinic" At the present time grants are given for diagnostic and treatment centers when they are operated by governmental or public sponsors or corporations and associations that own and operate nonprofit hospitals

The Mundt bill would eliminate the requirement that a mental health center or clinic must have a connection with a nonprofit hospital This bill was referred to the Committee on Labor and Public Welfare

Grants to Governmental Hospitals Only—Representative Siler (R, Ky), in H R 3103, would amend the Hill-Burton construction act to permit grants to governmental institutions only, thus eliminating nonprofit sponsors, both sectarian and nonsectarian, from receiving such grants This amendment was referred to the Interstate and Foreign Commerce Committee

Unused Allotments of Funds—Senators Malone (R) and Bible (D) of Nevada, in S 559, would amend the hospital construction act so that states with a population of fewer than 700,000 according to the 1950 census could have 50% of unused portions of categorical grant funds transferred from one category to another The present categories are hospitals, health centers, diagnostic or treatment centers, hospitals for the chronically ill, rehabilitation facilities, and nursing homes The surgeon general would have to determine that the lapsed funds for a category existed because no approvable applications were pending This measure was referred to the Committee on Labor and Public Welfare

Hospital Construction (Indians and Non-Indians)—Senators Murray and Mansfield, in S 380, and Representatives Metcalf, in H R 2021, and Anderson, in H R 2380 (Democrats, Mont), have introduced identical bills which would authorize the surgeon general of the Public Health Service to make grants to states or political subdivisions thereof, or public or nonprofit associations to construct hospitals which would serve Indians and non-Indians alike A hospital is defined to include "public health centers and general, tuberculosis, mental, chronic disease, and other types of hospitals, and related facilities, such as laboratories, outpatient departments, nurses home and training facilities, and central service facilities operated in connection with hospitals, but does not include any hospital furnishing primarily domiciliary care'

The applicants would be required to give assurance that Indians would not be discriminated against in furnishing of services by or in connection with hospitals, and that the grants would be used to augment funds derived from other sources in constructing hospitals

The government could recapture a portion of the federal grant within 10 years if an eligible applicant ceased to be owner of the hospital or if any funds had been diverted, or if any assurance given in the application was not being carried out The Senate bill was referred to the Committee on Interior and Insular Affairs The House measures were referred to the Committee on Interstate and Foreign Commerce

Indian Hospitals

Representative Edmondson (D, Okla), in H Con Res 13, would provide that "no Indian hospital be closed or reduced in capacity or service unless and until the Secretary of the Interior shall have received from the head of the State agency responsible for public health in the State in which such hospital is located a certification that such closing or reduction will not create or intensify a shortage of hospital facilities in the area served, and no Indian hospital be closed or reduced in capacity if the infant mortality rate or the death rate from tuberculosis among the Indian popublation in the area served by such facility be higher than the similar rates among non-Indian population in the area This bill was referred to the Committee on Interior and Insular Affairs

Treaties and International Agreements

Senator Bricker (R, Ohio), in S J Res 3, and Representative Bow (R, Ohio), in H J Res 226, have introduced identical measures which would propose an amendment to the Constitution, reading as follows

'Section 1 A provision of a treaty or other international agreement not made in pursuance of this Constitution shall have no force or effect This section shall not apply to treaties made prior to the effective date of this Constitution

"Sec 2 A treaty or other international agreement shall have legislative effect within the United States as a law thereof only through legislation, except to the extent that the Senate shall provide affirmatively, in its resolution advising consenting to a treaty, that the treaty shall have legislative effect

"Sec 3 An international agreement other than a treaty shall have legislative effect within the United States as a law thereof only through legislation valid in the absence of such an international agreement

"Sec 4 On the question of advising and consenting to a treaty, the vote shall be determined by yeas and nays, and the names of the Senators voting for and against shall be entered on the Journal of the Senate"

Representatives Hiestand (R, Calif), in H J Res 43, and Lanham (D, Ga), in H J Res 59, have introduced similar measures The Hiestand proposal would require that

'Section 1 A provision of a treaty or other international agreement which conflicts with this Constitution, or which is not made in pursuance thereof, shall not be the supreme law of the land nor be of any force or effect

Sec 2 A treaty or other international agreement shall become effective as internal law in the United States only through legislation valid in the absence of international agreement

Sec 3 On the question of advising and consenting to the ratification of a treaty the vote shall be determined by yeas and nays, and the names of the persons voting for and against shall be entered on the Journal of the Senate

Sec 4 This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of three-fourths of the several States within seven years from the date of its submission"

Congressman Lanham would require that 'An international agreement, other than a treaty shall become effective as internal law in the United States only by an Act of the Congress Such legislation must be concurred by two-thirds of each House These measures were referred to the respective judiciary committees

Veterans' Medical Care in the Philippines

Senator Hill (D, Ala), in S 392, and Representative Bentley (R, Mich), in H R 3206, have introduced similar measures which would authorize the Administrator of Veterans' Affairs to enter into contracts and other arrangements that he deems necessary to provide hospital, medical, and domiciliary care including treatment in the Republic of the Philippines to the veterans entitled to such care

Hospital Facilities for Retired Officers and Enlisted Men

Senator Goldwater (R, Ariz), in S 542, and Representative Rhodes (R, Ariz), in H R 2174, have introduced identical measures which would provide that 'Whenever hospital facilities over which the Veterans' Administration has direct and exclusive jurisdiction, or other government facilities for which the Administrator of Veterans' Affairs may have contracted, are available, the Administrator shall furnish to retired officers and enlisted men, upon application, hospital treatment for diseases or injuries" The Senate measure was referred to the Committee on Labor and Public Welfare and the House measure to the Committee on Veterans' Affairs

Practical Nurse and Auxiliary Hospital Personnel Training

Representative Huddleston (D, Ala), in H R 2156, would authorize the appropriation of 5 million dollars annually under the Vocational Education Act so that the Commissioner of Education could make grants to states which would sponsor programs for the development of practical nurse and auxiliary hospital personnel training The states would contribute funds for such programs within a formula similar to the Hill-Burton Construction Act formula with the federal government's share ranging from 33⅓% to not more than 75%

The term 'practical nurse" is defined as "a person who is trained to care for subacute, convalescent, and chronic patients under the direction of a licensed physician or under the supervision of a registered professional nurse, or to assist a registered professional nurse in the care of acute illness

(b) The term 'auxiliary hospital personnel means persons working in hospitals under the general supervision and direction of graduate nurses and heads of departments and services, such as ward aids, nursing aids and assistants, and assistants in laboratories and clinics and dietary departments of hospitals"

A similar bill was enacted in the last Congress—an appropriation of 2 million dollars plus administrative costs This bill was referred to the Committee on Education and Labor

Social Security Amendments re Disability Benefits

Senator Langer (R, N D), in S 173, would amend the Social Security Act to eliminate the requirement that an individual must have attained 50 years of age or over before he would be eligible for disability benefits thereunder The present law requires that the covered employee must be at least 50 years of age before he is eligible to receive money payments The Langer amendment would make any person who has acquired an insured status by reason of making contributions for the required number of years eligible to obtain disability money payments if he became permanently and totally disabled, regardless of age This amendment was referred to the Committee on Finance

Appointment of Chiropractors in the VA

Representative Rogers (R, Mass), in H R 2178, proposes to authorize the appointment of chiropractors in the Department of Medicine and Surgery of the Veterans' Administration They must 'hold a degree of doctor of chiropractic from a school or college approved by the Administrator, be licensed to practice chiropractic in one of the States or Territories of the United States or in the District of Columbia, and have practiced chiropractic for a period of at least two years'

Senator Magnuson (D, Wash) introduced, in S 968, an identical bill and then amended it to include the provision that "whenever any person is entitled by law or regulation to receive medical care by or through the Veterans' Administration he shall, if he so elects, have the right to receive chiropractic care and the Chief Medical Director shall make available the services of qualified chiropractors' This bill was referred to the Committee on Labor and Public Welfare

Non Service Connected VA Hospital Care

Representative Teague (D, Texas), in H R 2196, by request, has introduced a measure which would give equal priority for service-connected and non-service-connected disability or injury for inpatient and outpatient VA care for those veterans who have a service connected disability which is 30% or more disabling This measure was referred to the Committee on Veterans Affairs

Medical Advisory Committee on Alcoholism

Representative Huddleston (D Ala), in H R 2220, would establish a Medical Advisory Committee on Alcoholism in the Department of Health, Education, and Welfare The members would be appointed by the President "after consultation with the American Medical Association and the Mental Hygiene Division of the United States Public Health Service At least two-thirds of the members of the Committee shall be physicians, each of whom is licensed to practice medicine in one of the States or Territories of the United States or in the District of Columbia, and whose interest in the problems of alcoholism has been manifested by his medical background, studies, education, and research in the field"

The functions of the committee would be '(1) To advise and cooperate with the United States Public Health Service (and particularly with its Mental Hygiene Division) in promoting education on alcoholism throughout the departments and agencies of the Federal Government,

'(2) to promote education on alcoholism throughout the several States, acting primarily through the State departments of health,

"(3) to advise on the establishment of clinics for the care of alcoholics,

'(4) to advise the departments and agencies of the Federal Government on the establishment of facilities for the care of alcoholics at various stages of the disease, and particularly to advise with respect to the different types of medical approach which are required for rehabilitation at the different stages,

(5) to advise educational bodies on medical matters connected with alcoholism, and to provide material for inclusion in the syllabus of the various educational institutions, and

'(6) to provide advice, from a medical, educational, community, and sociological point of view, regarding the care, treatment, and prevention of alcoholism throughout the country" This bill was referred to the Committee on Interstate and Foreign Commerce

Medical Care for Permanently Disabled Seamen

Representative Addonizio (D, N J), in H R 2374, would amend the Public Health Service Act to provide "Medical and other care to seamen becoming permanently disabled while on active service Under the present law, to be eligible for care in medical facilities operated by the Public Health Service, the applicant must be able to show that he has been employed for 60 days of continuous service on a licensed vessel of the United States, part of which time must have been during the 90 days immediately preceding application for medical care Under the Addonizio proposal persons who have at any time acquired permanent disabilities while employed as seamen would be eligible for care for the rest of their lives This amendment was referred to the Interstate and Foreign Commerce Committee

Medical Care for Persons Engaged on U S Vessels — Delegate Bartlett (D, Alaska), in H R 2395, would amend the Public Health Service Act to provide medical care for all persons engaged on board a vessel in the care, preservation, or navigation of such vessel, thus including owners and operators of vessels as well as employed seamen Owners and masters are not at present eligible for such care This bill was referred to the Interstate and Foreign Commerce Committee

Vocational Rehabilitation of the Homebound

Representative Bentley (R, Mich), in H R 2398, would amend the Vocational Rehabilitation Act to authorize the application of 2 million dollars annually for 6 years from which the Secretary of the Department of Health, Education, and Welfare would 'make grants to States and public and other nonprofit organizations and agencies for the purpose of—

(A) establishing methods and techniques for the use of other states, organizations, and agencies in understanding the size, essential characteristics, and needs of the homebound population

(B) developing effective and economical methods for coordinating available resources to provide the services needed to achieve the highest possible level of useful activity for each physically handicapped individual who is homebound

'(C) furnishing data on which reliable material estimates may be projected and the future role of the Federal Government may be determined in meeting the needs of the physically handicapped individuals who are homebound' This was referred to the Education and Labor Committee

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

TWO NEW STATE SCHOOLS OF MEDICINE—UNIVERSITY OF MISSISSIPPI AND UNIVERSITY OF MISSOURI

The University of Mississippi School of Medicine, first created by an act of the board of trustees of the University in June, 1903, was located on the campus of "Old Miss" at Oxford During the next six years it offered the first two years of a four-year medical curriculum In 1909-1910, a clinical department was established at the State Charity Hospital of Vicksburg but was discontinued after one session In 1950, the Mississippi legislature passed an enabling act and an act making an appropriation to establish a four-year school of medicine to be located at Jackson as part of the University of Mississippi and a teaching hospital to be operated as part of the school Additional funds for construction of the hospital were provided by Hinds County and by the federal government

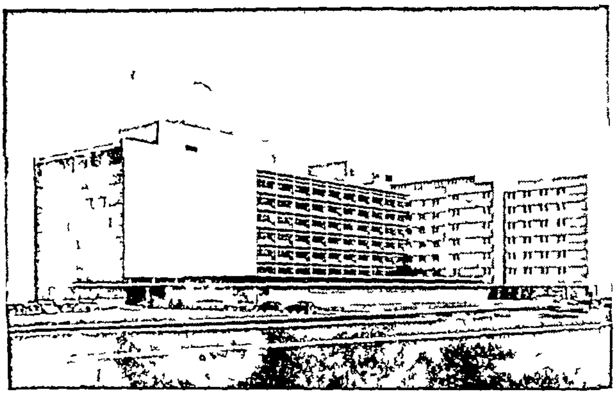

Fig 1 —University of Mississippi School of Medicine and University Hospital Jackson

The University of Mississippi Medical Center, consisting of the School of Medicine and the University Hospital (fig 1), was completed in the summer of 1955 The personnel and equipment of the two-year basic medical science school at Oxford were moved to the new building in Jackson in time for the beginning of the academic year 1955-1956 It will graduate the first class in June, 1957

The University of Missouri School of Medicine was originally built upon the medical department of Kemper College (McDowell Medical College), founded in St Louis in 1840 This was the first medical school established west of the Mississippi River, and in 1845 it became a department of the University of Missouri Ten years later the school was discontinued, and in 1872 it was reestablished on the university campus in Columbia, where it offered the two year program characteristic of most medical schools at that time In 1891, the curriculum was increased to three years and in 1899 to four years The last two years of the curriculum were discontinued in 1910 because of the inability to finance expansion necessary for adequate teaching of clinical subjects From 1910 to 1955 the university maintained the first two years of a regular medical course with its students transferring to other institutions for their clinical training In 1951, the legislature of Missouri appropriated funds to enable the University of Missouri to undertake expansion to a full four-year program leading to the degree of doctor of medicine

Additional appropriations were made by the legislature in 1953 for construction of a new university hospital, medical sciences building, and nurses dormitory These structures (fig 2) have been completed and have been occupied during recent months The curriculum for the third year was activated in 1955 1956, and the University of Missouri will graduate the first class from this new four-year school in June, 1957

Fig 2 —University of Missouri School of Medicine and University Hospital, Columbia

POSTGRADUATE COURSES

The following postgraduate courses have been reported to the Council

The Ear, Nose, and Throat Clinics and Seminars, sponsored by the University of California Medical Center in San Francisco, will be held May 24-25, 1957, for physicians in general practice and part-time specialty practice The 14 hours of instruction will include operative surgery, lectures, open question periods, and motion pictures The fee will be $40

Beginning June 11, 1957, the University of California Medical Center in San Francisco will hold a continuous Pediatric Postgraduate Course, emphasizing endocrinology and related problems in the practice of pediatrics The four days of lecture will be offered to physicians in general practice and part-time specialty practice for a fee of $60

MEDICINE AND THE LAW

This is the ninth in a series of article dealing with medical professional liability An editorial (page 360) and a chronological résumé (page 364) appeared in The Journal, *Feb 2 One of the preceding articles has been published each week in* The Journal *beginning Feb 9, 1957, except in the April 20, April 27, and May 4 issues* —Ed

PROFESSIONAL LIABILITY AND STATUTES OF LIMITATION

One of the purposes of the law is to furnish a forum which persons who have suffered a wrong at the inds of another may present facts for adjudication by judge or jury Ideally this should be done as prompt- as possible after the wrong has been suffered be- use necessary witnesses may die or move away, ius making the presentation of facts, by both the laintiff and the defendant, difficult or impossible ealizing that a defendant needs some protection gainst a plaintiff who might purposely withhold filing uit until the defendant's witnesses have disappeared, tate legislatures have enacted laws requiring injured ersons to bring suit within a specified period of time fter they have received their alleged injuries These aws, known as statutes of limitation, limit the time ithin which a person may commence an action for ersonal injuries, breach of contract, slander and libel, tc They are founded upon the general experience hat claims that are valid are not usually allowed to emain neglected

As is true of so many other laws, the provisions of statutes of limitation vary considerably from state to state, not only as to the length of time allowed to bring various types of actions but also as to when the time starts to run, factors that prevent the time from unning, types of action covered, etc

As the accompanying table indicates, every state has enacted a statute relating to the time within which an injured patient may sue a physician for professional misconduct In only 17 states however, does the statute refer specifically to malpractice or professional liability of physicians, in the others such suits are covered by the statute applicable to torts in general or to all personal actions, whether in tort or contract The important thing to physicians is that a limitation statute exists in every state, and each physician should know the length of time applicable to such actions in his jurisdiction In addition to knowing the limitation period applicable to professional liability cases arising out of tort or out of the implied contract created by the mere existence of the physician-patient relationship, the physician should remember that he may also be sued for breach of a specific promise to cure, if he has been foolish enough to make one In such a case, the period of limitation applicable to suits on an oral or written contract will govern the situation The period for filing suit on a written contract, and on an oral contract in some states, is almost always longer than that for filing suits for torts in general The period of limitations for contracts, however, will apply to a professional liability case only when there has been a specific promise to cure In other cases, the limitation period prescribed for actions against physicians for professional liability or negligence has been held to apply notwithstanding the fact that the complaint in a particular case is in the form of an action on a contract

Factors That Prevent Statutes from Running

In addition to knowing the basic limitation period applicable to professional liability cases in his state, each physician should also be cognizant of certain conditions that prevent the statute from running against the claimant These situations arise by virtue of statute, rather than from the common law, and again they vary from state to state Perhaps the most common factor that prevents the running of the statute is infancy In 44 states and the District of Columbia, if the alleged injury is to a minor the statute does not begin to run until after the person reaches his majority, usually 21 years of age for males and 18 for females In most instances the basic statute then applies, although in a few instances the time applicable after minority terminates is shorter than the general statute

Another important factor that may have the effect of tolling the statute is the fradulent concealment of a cause of action by a wrongdoer This is especially true in those cases in which the plaintiff's injury did not manifest itself until some years after the negligent act was committed A foreign body left in a patient after surgery may not cause trouble until after the statutory period has run If there is any evidence that indicates that the physician knew of the presence of the foreign body but did not so advise the patient, some courts have held that there has been a concealment of the cause of action by the physician and that the statute does not start to run until the plaintiff discovered the injury, or in the exercise of reasonable care should have discovered it

Other factors that sometimes effect the running of the statute are the absence of the patient from the jurisdiction and the fact that the patient is insane It should also be noted that in some states the provisions of the Wrongful Death Statute might seem to affect an extension of the statute of limitation That is not exactly what happens, however When an injured patient dies, the representative of his estate is granted a certain length of time in which to file a suit for damages on behalf of the estate This time begins to run, of course, with the time of the death The physician is thus liable to be sued for a period longer than the period of limitations for professional liability actions, not because the period for filing such an action is increased but because the death of the patient actually created a new cause of action, which is subject to a new period of limitation Periods of limitation stated in wrongful death acts differ from state to state, just as do periods limiting the time within which professional liability suits may be started Therefore, here again the physician must familiarize himself with the provisions of the law in the state in which he practices

Statutes of Limitation

State	No of Year Statute of Limitation Apply: Mal practice (Tort)	Mal practice (Tort or Contract)	Oral Contract	Written Contract	Assault and Battery	Wrongful Death Action	States in Which Statute Refers Specifically to Malpractice or Professional Liability	States in Which Statutes Limitation Run: From Time of Negligent Act	From Termination of Physician Patient Relationship	From Time of Discovery of Injury	From Time Cause of Action Accrues	From Termination of Treatment	State in Which Infancy Tolls Statute
Alabama		2				2	X			X			X
Arizona	2		3	4 & 6		2		X					X
Arkansas		2				2	X	X					X
California	1		2	4	1	1				X			X
Colorado		2	3	3	1	2	X				X		X
Connecticut	1		6	6		1	X	X					
Delaware	1		3	3		3		X					
District of Columbia	3		3	3	1	1							X
Florida	3		3	5	2	2							
Georgia	2		4	6		2		X					X
Idaho	2		4	5	2	2		X					X
Illinois	2		5	10		1		X					X
Indiana		2				2	X	X					X
Iowa		2				2		X					X
Kansas	2		3	5	1	2		X					X
Kentucky	1		5	15	1	1	X	X					X
Louisiana	1		10	10		1				X			
Maine	2		6	6	2	2	X						X
Maryland	3		3	3	1	1½				X			X
Massachusetts		2			2	2	X	X					X
Michigan	2		6	6	2		X		X				X
Minnesota		2			2	3	X		X				X
Mississippi	6		3	6	1	6							X
Missouri	2		5	5	2		X					X	X
Montana	3		5	8		3		X					X
Nebraska	2		4	5	1	2	X					X	X
Nevada	4		4	6	2	2							X
New Hampshire	2		6	6		2	X						X
New Jersey	2		6	6		2		X					X
New Mexico	3		4	6		3							X
New York	2		6	6	2	2	X	X					X
North Carolina	3		3	3	1	2		X					X
North Dakota	2		6	6	2	2	X			X			X
Ohio	1		6	15	1	2	X		X				X
Oklahoma	2		3	5	1	2		X					X
Oregon	2		6	6	2			X					X
Pennsylvania	2		6	6	2	1		X					X
Rhode Island	2		6	6		2							X
South Carolina	6		6	6	2	6							X
South Dakota		2			2	3	X						X
Tennessee	1		6	6		1		X					X
Texas	2		2	4		2		X					X
Utah	4		4	6	1	2						X	X
Vermont	3		6	6	3	2		X					X
Virginia	2		3	5		1							X
Washington	3		3	6	2	3		X					X
West Virginia	1		5	10		2		X					X
Wisconsin	3		6	6	2	2		X					X
Wyoming	4		8	10	1	2							X
Total							17	25	3	5	1	3	45

Start of Limitations

In addition to knowing when the statute does not run, it is also helpful to know when it does run or, more specifically, when it actually starts to run Here, once more, there is considerable variation as the table indicates This table was prepared on the basis of a survey of the statutes of each state conducted by the Law Department If the results differ somewhat from other tabulations, it is because some interpretations must be made and there is often room for a difference of opinion In 25 states the statute starts to run at the time the negligent act was allegedly committed or at the time the accident happens In five states the statute runs from the time the injury is discovered or from the time the injury should or could have been discovered if the plaintiff exercised a reasonable degree of alertness Three states start counting the time from the termination of the physician-patient relationship and three other states from the time the treatments, if there is a series of them, terminate One state counts from the time the cause of action accrues Perhaps this should really be added to the number of states using the time of the negligent act as the starting point, although the two do not necessarily coincide Finally, it will be noted that no classification was made for 11 states and the District of Columbia This is because in those jurisdictions no clear decision as to when the statute starts to run could be reached from the wording of the statutes or court cases covered by the survey

Twenty-nine states and the District of Columbia have enacted statutes of limitation relating specifically to actions for assault and battery in addition to those relating to professional liability or personal injury An action based upon an unauthorized operation, for example, may also be an assault and battery In those states in which the statutory period for actions for assault and battery is less than for professional liability and there are 15 of them, the question naturally arises as to which statute would apply It is the policy of the law to protect a cause of action wherever possible, and it is therefore safe to conclude that if there is a choice the court will adopt the statute most favorable to the plaintiff

Importance of Statutes of Limitation to Physicians

Having considered the purpose of the statutes of limitation, the time limits in each state, the factors that prevent or delay the running of the statute, and the factors that determine the time from which the statute runs, consideration must now be given to the ways in which the statutes of limitation are important to physicians, especially with reference to professional liability There are two in particular

As the length of service and the volume of a physician's practice increases, the need for storage space for his files becomes a major problem How long should these records be kept? It is possible to suggest at least a minimum guide This minimum guide is the statutory period of limitations for professional liability actions in the particular jurisdiction In view of the important part that a physician's records play in the defense of such an action, they should not be disposed of before the time has passed within which he may be sued Furthermore, even though no suit is filed against the physician, it is often essential to the interests of the patient that such records be available for the prosecution of a personal injury or workmen's compensation claim Thus, the period of limitations for professional liability actions, and for personal injury actions generally, represents a definite minimum period during which a physician should preserve his office records Physicians taking care of young people or children, pediatricians and obstetricians especially, should remember that the statutory period does not run in most states until the patient becomes of age Parenthetically, it might be pointed out here that the development and improvement in recent years of the process known as microfilming has proved to be an answer to the records-maintenance problem There is no reason why physicians may not utilize the advantages offered by such a process If that is done, hundreds of patients records may be preserved in less space If reference must be made to them later or if they are needed for use in court on some future occasion, they are readily available

The second thing that makes statutes of limitation particularly important to physicians relates to the subject of income From time to time it becomes necessary for a physician to utilize the facilities of the law for collecting from his patients—in other words he must sue for a fee Just as a patient has a certain length of time in which to file a professional liability action so too must a physician file a suit to recover a fee within a certain period However, a suit for a fee is generally a suit on contract, oral and implied, whereas a professional liability suit is usually a tort action

An inspection of the table reveals that in 32 states the statutory period fixed for professional liability actions differs from that fixed for suits based on an oral contract It shows, further, that in only one of those states is the statutory period less for a suit on a contract In all others the period within which one may sue on a contract is from one to nine years longer than the professional liability period Thus, if a physician should sue a patient for a fee during the limitation period for the filing of professional liability suits, the patient may file a counterclaim for damages as an affirmative defense to the suit for fees The courts quite generally hold, however, that a counterclaim is an affirmative action, not a matter of pure defense and that, if the statute of limitations has run on the affirmative action, it may not be reinstated by setting it forth as a counterclaim To hold otherwise would frustrate the purpose of compelling claimants to seek prompt enforcement of their claims This means, therefore, that if a physician withholds the filing of a suit to recover a fee until the statutory period for a professional liability action has passed the issue will be limited solely to the amount and reasonableness of the fee charged and whether or not it has been paid

A physician may, therefore, prevent at least some professional liability difficulties by being aware of the provisions of the statutes of limitation in his state

MEDICAL NEWS

ARKANSAS

Grant for Mentally Retarded Children—The Children's Bureau has made a grant of $38,780 to the Arkansas State Board of Health for a special project for mentally retarded children The funds were authorized as part of one million dollars designated by Congress in 1956 for mental retardation programs throughout the country The money will be used to help establish a child development center at Little Rock, to which children from all over the state may be referred Emphasis will be on diagnosing the extent of retardation in the child and on counselling parents on how to help the child develop to his maximum potential

ILLINOIS

Annual State Surgical Meeting—The annual meeting of the Illinois Surgical Society will be held May 20 The clinics, to be held at 8 a m, at Cook County Hospital, Harrison and Wood Streets, Chicago, will include two symposiums "Surgery of the Biliary Tract and Pancreas," moderated by Dr Raymond W McNealy associate professor of surgery, emeritus, Northwestern University Medical School, Chicago, and "Care of Fractures," by Drs George L Apfelbach, associate professor of orthopedic surgery, emeritus, Edward L Compere, professor of orthopedic surgery, and Robert T McElvenny, assistant professor of orthopedic surgery, Northwestern University Medical School At the scientific meeting, 7 30 p m at the University Club, Michigan Avenue and Monroe Street, Dr George A Hallenbeck, assistant professor of surgery and physiology, University of Minnesota Graduate School, will present "Peptic and Gastric Ulcer Surgery," with discussion by Drs Lester R Dragstedt, Chicago, Karl A Meyer, Chicago, Walter L Palmer, Chicago, and Tilden C Everson, Chicago The medical profession is invited to all sessions

MICHIGAN

Internists Organize—Fifty-three Michigan specialists in internal medicine from all over the state met in Lansing, Feb 23, to discuss the advisability of forming an organization to best approach the problems of their specialty It was decided to form the Michigan Society of Internal Medicine' Those present became the founding members and, after adopting a constitution, elected officers The objectives of the society are to unite the qualified internists of the state in a representative organization for the furtherance of the practice of internal medicine, to study the scientific, economic, social and political aspects of medicine in order to secure and maintain the highest standards of practice in internal medicine, and to cooperate with other organizations of like purposes The organization voted to join the American Society of Internal Medicine All the founders are diplomates of the American Board of Internal Medicine Newly-elected officers are president, Dr James W Hall Jr, Traverse City, vice-president, Dr Michael C Kozonis, Pontiac, secretary treasurer, Dr Ross V Taylor, Jackson

MISSOURI

Personal—Dr Clarence D Davis, formerly professor of obstetrics and gynecology at the University of Missouri School of Medicine, Columbia, has been appointed associate professor of obstetrics and gynecology at the Yale University School of Medicine, New Haven, Conn ——Dr Orval R Withers of Kansas City, Mo, has been named president of the American College of Allergists ——Dr Robert B King has been appointed professor of surgery, Syracuse University College of Medicine, Syracuse, N Y, effective June 1 He is presently assistant professor of neurosurgery, Washington University School of Medicine, St Louis ——Dr Walter J Burdette, professor of clinical surgery, St Louis University School of Medicine, Columbia, and director of the St Louis University surgical service at Veterans Hospital has been awarded two grants totaling $24,895 by the American Cancer Society Dr Burdette is conducting research on the isolation of a new hormone which may be useful in the treatment of cancer

New Rehabilitation Institute—Washington University, St Louis, announces plans for a new rehabilitation institute to serve disabled persons in the St Louis metropolitan area It will also train personnel in rehabilitation procedures, develop new methods of treatment, and carry on an active research program relating to chronic disabilities The new building, which will be located on Euclid Avenue, between McMillan Hospital–Oscar Johnson Institute and the Washington University Clinics, will house the departments of physical and occupational therapy now located in other buildings in the Washington University Medical Center Dr Robert E Shank, professor of preventive medicine since 1948, will be director of the institute Defects to be treated will include hemiplegia, paraplegia, amputations, cardiac disabilities, muscular dystrophy, cerebral palsy, alcoholism, and speech and hearing difficulties Construction of the air-conditioned building is slated to begin before next July The cost will be about $675,000 In addition to funds given by the late Mrs Irene Johnson, for whom the institution will be named, a Federal grant of $114,000 was made in September under terms of the Hill-Burton Act Other support for teaching programs has come from the National Foundation for Infantile Paralysis

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals education, and public health Programs should be received at least three weeks before the date of meeting

MONTANA

Western Association Meeting in Missoula—The Western Montana Medical Association invites all physicians in this region to attend the Western Montana Medical-Surgical Conference June 29 at the Florence Hotel, Missoula Principal speakers will be Dr William R Christensen, professor of radiology, University of Utah College of Medicine, Salt Lake City, Utah, and Dr Lester R Dragstedt, professor of surgery, University of Chicago Topics to be considered include pathogenesis and treatment of gastric and duodenal ulcer, the solitary pulmonary nodule, anesthesiology, congenital heart disease, neurosurgical relief of intractable pain, radiation safety in the doctor's office, and flat feet The program has been authorized for eight hours of credit by the American Academy of General Practice A special ladies' program is planned, and a cocktail hour will be held at 5 30 and a dinner dance at 6 30 p m

NEW YORK

Appoint Surgery Department Director—Dr Charles L Eckert, formerly associate professor of surgery and director of tumor services at the Washington University School of Medicine, St Louis, was recently appointed chairman of the department of surgery at Albany Medical College and surgeon-in-chief to the Albany Hospital, to succeed the late Dr Eldridge Campbell Dr Eckert previously served as an affiliate in surgery at Barnes and St Louis Children's Hospital and at St Louis City Hospital and as consultant in surgery to the Veterans Administration Hospital, St Louis, and area consultant in surgery to the Veterans Administration

Dr Lippschutz Honored—A $90,000 endowment was recently presented by an anonymous local donor for a chair in clinical cardiology in the University of Buffalo School of Medicine Dr Eugene J Lippschutz, director of the cardiovascular section of the department of medicine at the Buffalo General Hospital, Buffalo, has been appointed to fill the chair, which has been assigned to the Buffalo General Hospital Dr Lippschutz, whose appointment became effective Jan 1, has been promoted from associate clinical professor to associate professor in the department of medicine The university will apply the grant over a five-year period as follows $12,000 each year for the professorship and $6,000 each year to cover additional expenses in conjunction with the research conducted

New York City

Harvey Lecture—The 10th and final Harvey Lecture in the present series will be delivered June 6, 8 30 p m, at the New York Academy of Medicine, 103rd Street and Fifth Avenue by Dr Carl J Wiggers, Bunts Educational Institute, Cleveland Clinic, Cleveland, whose subject is "Harvey Tercentenary"

Hospital News—An integrated department of cardiology has been established at The Mount Sinai Hospital under Dr Charles K Friedberg, who will serve as cardiologist to the hospital and attending physician for cardiology The cardiology department, a division of the department of medicine, will include and coordinate all cardiac groups and their clinical and research activities A comprehensive residency and clinical fellowship program is being established

Ira I Kaplan Lecture—The annual Ira I Kaplan lecture sponsored by the Radiation Therapy Alumni of Bellevue Hospital will be held in the Auditorium of Bellevue Hospital May 23, 5 p m A symposium on the physics and economy of isotopes and supervoltage will be held, with E Dale Trout, B S, Milwaukee, Wis, Dr Ruth J Guttmann, assistant professor of radiology, Columbia University College of Physicians and Surgeons, New York, and Dr Sidney M Silverstone, radiologist, New York City, serving as panelists

PENNSYLVANIA

Dr Leopold Receives Holmes Award—Dr Irving H Leopold, chairman, department of ophthalmology, University of Pennsylvania Graduate School of Medicine, Philadelphia, and director of research at the Wills Eye Hospital, Philadelphia has been named recipient of the 1957 Edward Lorenzo Holmes Memorial Award of the Institute of Medicine of Chicago

Dr Leopold will receive the award and speak at a joint meeting of the Chicago Ophthalmological Society and the Institute of Medicine on May 20

General Practitioners Meeting—The ninth annual Pennsylvania Academy of General Practice convention will be held at the Benjamin Franklin Hotel, Philadelphia, May 26-29 Dr Robert A Davison, head, department of general practice, University of Tennessee College of Medicine, Memphis, will present "Organization of Department of General Practice in Medical Schools," and a forum, "Diverticulitis, Diverticulosis, and Carcinoma of the Colon," will be moderated by Dr Lewis K Ferguson, professor of surgery, Woman's Medical College of Pennsylvania, Philadelphia A panel discussion, x-ray films, and medical and surgical treatment conference will be conducted by Drs Thomas A Johnson, professor of clinical gastroenterology, and Arthur Finkelstein, professor of radiology, University of Pennsylvania Graduate School of Medicine, Philadelphia Question and answer periods will follow presentation of papers in the morning and afternoon sessions Information may be obtained from Dr Edward J Kowalewski, Chairman, Publicity and Press of the Program Commission, Pennsylvania Academy of General Practice, 115 N 9th St, Akron, Pa

Philadelphia

Establish Charitable Foundation—The Physicians Square Club of Philadelphia has established a nationwide charitable foundation, which will extend educational and scholarship aid to orphans and assistance to widows of members of the medical profession and also seek to encourage medical research Dr D Barton Gelfond is president of the club, which is composed of physicians who are members of the Masonic Order A temporary board of trustees has been named with Dr Joseph B Wolffe, medical director of the Valley Forge Heart Hospital near Norristown, as president, Drs Jack S Ersner and George Rosenbaum, vice-presidents, Dr Matthew S Ersner, secretary, and Dr

Benjamin O Oliver treasurer The foundation will derive its funds from members of the Physicians Square Clubs throughout the country and from the medical profession

Student Loan Fund—A student loan fund in the amount of $11,500 has been established by Mrs Rose Strick at the Temple University School of Medicine as a 'living monument' to her husband, the late Frank Strick, industrialist Allocations from the gift, which is to be known as the Frank and Rose Strick Loan Fund, will be recommended by Dr William N Parkinson, dean of the school of medicine Students in need of financial assistance will receive $500 during a single academic year If necessary, a renewal may be arranged for another term Loans are to be repaid by students within six years after graduation

VIRGINIA

Personal—Dr Carl J Carter, of Fairmont, has been named superintendent of Fairmont General Hospital, as of March 1, succeeding Dr Philip Johnson who served as head of the institution since 1947

Annual Scientific Assembly—The seventh annual scientific assembly of the Virginia Academy of General Practice will be held at the Hotel Roanoke Roanoke, May 23-26 Among the speakers and their topics will be

Physiological Basis for Current Therapy of Degenerative Vascular Disease in Diabetes Mellitus Henry T Ricketts University of Chicago
Fat Cholesterol and Coronary Heart Disease Norman Jolliffe, New York City
Can Atherosclerosis be Reduced in the United States Howard B Sprague Brookline Mass

A panel discussion on the use of various types of insulin in the management of diabetes mellitus including the oral hypoglycemic agents, and the Nemours Foundation symposium on the handicapped child are featured Exhibits, a dinner dance, and a golf tournament at the Roanoke Country Club are scheduled For information write the Virginia Academy of General Practice, 1105 W Franklin St, Richmond 20

WEST VIRGINIA

Personal—Dr Azby A Milburn has been appointed by Governor Cecil H Underwood as acting superintendent of Weston State Hospital, Weston He succeeds Dr H Sinclair Tait, who resigned to accept appointment as senior psychiatrist at the Regional Office of the Veterans Administration in Wheeling

Ophthalmologists and Otolaryngologists Meet—The 10th annual meeting the West Virginia Academy of Ophthalmology and Otolaryngology will be held at the Greenbrier in White Sulphur Springs May 31-June 1 The scientific sessions will be held during the mornings with the afternoons left open for recreational activities The scientific program includes "Evolution of Vision,' by Dr Joseph Krimsky, chief, eye, ear, nose, and throat department, Veterans Administration, Huntington, and Eye Disturbances in Relation to Nasal Sinus Diseases," and Dacryocystorhinostomy Roentgenogram of the Optic Foramen by Dr Henry M Goodyear, professor of otolaryngology, University of Cincinnati College of Medicine, Cincinnati Roundtable discussions, 'When to Operate in Glaucoma, Ear, Nose and Throat Anesthesia," 'Scleral Resection and Buckling, and Ear, Nose and Throat Radiology,' are scheduled Dr Wilbur F Shirkey, Charleston, will be installed as president of the academy at the business meeting He will succeed Dr William F Beckner, of Huntington

GENERAL

Personal—Dr Gunnar Dybward, director, Child Study Association of America since 1951, has been named executive director of the National Association for Retarded Children

Winners of Leukemia Awards—The Leukemia Society, Inc, New York City, recently presented the Robert Roesler de Villiers awards under the society's contest III to Dr Leon Orris Jacobson, Chicago, and to John F Loutit, D M, F R C P, Steventon, Berks, England Participants at the presentation ceremonies included Drs Frank L Babbott, New York City, Leona Baumgartner, New York City, and William B Castle, Boston

Pathologists Meet in Baltimore—A joint meeting of the Middle Eastern Region of the College of American Pathologists, the Washington Society of Pathologists, the Maryland Society of Pathologists, and the Pathology Section, Baltimore City Medical Society is scheduled for May 26 in the auditorium, Veterans Administration Hospital, Baltimore At 5 p m a lymph node seminar will be conducted by Dr R Philip Custer, director of laboratories, Presbyterian Hospital, Philadelphia Seminar slides ($5 00) may be obtained from Dr Paul F Guerin, 700 Fleet St, Baltimore 2

Announce Hematology Fellowship—The Hematology Research Foundation invites applications for the Ruth Berger Reader fellowship for research in blood diseases in the academic year 1957-1958 The stipend for the fellowship is $3,000 a year with the option to renew Application from a scientist doing research on thrombotic thrombocypenic purpura, if such is available, would be welcomed The foundation also invites applications for grants-in-aid for the purpose of hemotologic research for the period of one year Applications must be submitted no later than May 30 to Hematology Research Foundation, 64 W Randolph St, Chicago 1, Ill Nine copies of application are requested (Application forms for fellowship or grants are available upon request)

Pediatricians Meet in Seattle—The annual spring meeting of the North Pacific Pediatric Society in association with the American Academy of Pediatrics will be held at the Olympic Hotel, Seattle, May 9 11 The Walter B Seelye Lecture will be given by Dr Amos Christie, 4 p m, May 9, in the auditorium of the University of Washington School of Medicine Guest speaker at the dinner May 10 will be Elof Götelander, director of public relations, Karolinska Institute, Stockholm The presidential address will be given by Dr Norman W Murphy, president of the society Panel discussions will be held following presentation of the formal papers at the general sessions A dinner dance will be held May 11 For information write A C McGinnis, 1427 I St N W, Washington 5

Goiter Association Meets in New York—The American Goiter Association will meet at the Hotel Statler, New York City, May 28-30 Topics to be presented by foreign authors include "T S H Discharge of Radioiodine from Thyroid Nodules in Vitro," by Selwyn F Taylor and B Moffitt, London, England, and "Serum Protein Abnormalities in Thyroid Disease," by D P Morgan, R Bird and R Greene, Hampstead, England The presidential address will be delivered by B M Dobyns, associate professor of surgery, Western Reserve University School of Medicine, Cleveland The Van Meter prize essay will be delivered May 29 A joint session with the Endocrine Society will be held May 30 at the Hotel New Yorker At that time R Pitt-Rivers, D Hubble, and W H Hoather, London England, will speak on "Distribution of Thyroidal Iodine in Some Nodular Goiters" For information write Dr John C McClintock, American Goiter Association, 149½ Washington Ave, Albany 10, N Y

Cardiovascular Research Awards—A broad range of studies in the field of heart and blood vessel diseases will be undertaken by 155 scientists recently named by the American Heart Association to receive $977,000 in research awards Major targets of these studies, to be conducted in the 12 months beginning July 1, will be the causes of coronary heart failure and high blood pressure and further development of artificial heart-lungs to facilitate dry-field surgery inside the heart The new awards provide differing levels of support Three are lifetime career investigatorships with $25,000 a year set aside to cover the stipend and help support the laboratory of selected individuals of outstanding scientific achievement and ability Eighty are established investigatorships, with $6 000-$9 000 a year awarded for five-year periods (subject to annual review) to highly-qualified scientists conducting independent research Seventy-two are research fellowships, intended to help young scientists prepare for research careers under experienced guidance Given for one- or two-year periods they provide stipends of from $3 500 to $6,000 a year

Influenza Outbreak—The following information appeared in the U S Public Health Service morbidity and mortality weekly report of March 8 Dr Klaus Hummeler, Children's Hospital, Philadelphia, reports that the virus isolated in the outbreak of influenza in a boys' school in New Jersey has been identified as influenza A-prime Dr Arthur M Washburn, Arkansas Board of Health, has reported that outbreaks of influenza-like disease have been reported in contiguous counties in eastern Arkansas No reports of laboratory confirmation of diagnosis were made At the time of this report, only localized epidemics of influenza, confirmed by isolation of virus or serologic tests, had been reported The first of these occurred in December in recruits stationed at Great Lakes Naval Training Station The second occurred in mid-January in El Paso County, Colorado, and the third was reported from Memphis, Tenn, late in January Scattered cases confirmed by serologic tests were reported in military personnel in the Norfolk, Va, area The first confirmed outbreak in civilians this winter was reported early in February in a university in Michigan, and the second about the middle of the month in the boys' school in New Jersey All the outbreaks have been identified as influenza A-prime virus infections

LATIN AMERICA

Drug Control Service in Brazil—A Federal Drug Control Laboratory and Service has been established in Brazil to apply the appropriate controls of drugs imported or manufactured in that country and offered for sale At the request of the Brazilian government the Pan-American Sanitation Bureau has provided a consultant to advise the director of the laboratory and service and to assist in its establishment and operation, in the development of field services, and in the revision and formulation of legislation The director of the laboratory is Dr Raymundo Moniz de Aragão

FOREIGN

Heart Symposium in Freiburg—A symposium on the functional diagnosis of the heart will be held under the direction of Prof Ludwig Heilmeyer, professor of internal medicine, at the medical clinic of the University of Freiburg, Freiburg im Breisgau, Germany, June 6-8 The subjects to be discussed are the importance of electrocardiography and vectocardiography, roentgenology, and spiroergometry and other methods of functional diagnosis The number of participants will be limited Information can be obtained from Dr H Klepzig, Medical University Clinic, Freiburg im Breisgau, Hugstetter Strasse 55, Germany

Harvey Tercentenary Congress—The Harvey Tercentenary Congress will be held June 3-7 at the Royal College of Surgeons, London, sponsored by the International Congress on Circulation Topics of discussion include knowledge of the circulation from the 17th-20th centuries, the role of the heart in the circulation, the results of cardiac surgery, and coronary, pulmonary, fetal and pulmonary circulation Registration fee is £10 ($28) The congress will be followed by a conference June 8 on the more personal and biographical aspects of William Harvey's life at his birthplace, Folkestone, Kent, and will include a visit to Canterbury Cathedral Details may be obtained from Congress Secretary, 11 Chandos St, Cavendish Square, London W 1, England

CORRECTION

Diagnosis of Schistosomiasis—Dr Benjamin W Warner has written THE JOURNAL saying that the words "and Balantidium coli," in the left-hand column, 11 lines from the bottom of page 1323 of the April 13th issue, should have been deleted, as this was an incidental infection not pertinent to the report

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

ALABAMA *Examination* Montgomery, June 18-20 Sec Dr D G Gill State Office Bldg Montgomery 4

ARKANSAS * *Examination* Little Rock June 13-14 Sec, Dr Joe Verser Harrisburg

CALIFORNIA *Written Examination* San Francisco June 17-20, Los Angeles Aug 19 22 Sacramento Oct 21-24 *Oral Examination* San Francisco June 15 Los Angeles August 17, San Francisco Nov 16 *Oral and Clinical for Foreign Graduates* San Francisco June 16, Los Angeles, Aug 18, San Francisco Nov 17 Sec, Dr Louis E Jones, 1020 N St, Sacramento 14

COLORADO * *Examination* Denver, June 11-12 Final date for filing application is May 13 Exec Sec, Miss Beulah H Hudgens 715 Republic Bldg, Denver 2

CONNECTICUT * *Homeopathic Examination* Derby, June 11 Sec, Dr Donald A Davis 38 Elizabeth St, Derby *Regular Examination* Hartford, July 9-11 Sec, Dr Creighton Barker, 160 St Ronan St New Haven

DELAWARE *Examination* Dover, July 9-11 *Endorsement* Dover, July 18 Sec Dr Joseph S McDaniel, 225 S State St Dover

DISTRICT OF COLUMBIA * *Examination* Washington, May 13-14 Deputy Director Mr Paul Foley, 1740 Massachusetts Ave, N W, Washington

FLORIDA * *Examination* Miami June 23-25 Sec, Dr Homer L Pearson 901 N W 17th St, Miami

GEORGIA *Examination and Reciprocity* August and Atlanta, June Sec, Mr Cecil L Clifton 111 State Capitol, Atlanta 3

IDAHO *Examination and Reciprocity* Boise July 8-10 Exec Sec, Mr Armand L Bird 364 Sonna Bldg Boise

ILLINOIS *Examination and Reciprocity* Chicago, June 17-21 Supt of Regis Mr Fredric B Selcke, Capitol Bldg, Springfield

INDIANA *Examination* Indianapolis, June 19 21 Exec Sec, Miss Ruth V Kirk, 538 K of P Bldg, Indianapolis

KANSAS *Examination and Endorsement* Kansas City, June 5-6 Sec Dr Lyle F Schmaus, 864 New Brotherhood Bldg, Kansas City

KENTUCKY *Examination* Louisville June 10-12 Sec, Dr Russell E Teague 620 S 6th St Louisville

LOUISIANA *Examination and Reciprocity* New Orleans June 6-8 Sec Dr Edward H Lawson, 930 Hibernia Bank Bldg, New Orleans 12

MAINE *Examination and Reciprocity* August, July 9-11 Sec, Dr Adam P Leighton 192 State St Portland

MARYLAND *Examination* Baltimore, June 18-21 Sec, Dr Lewis P Gundry, 1215 Cathedral St, Baltimore 1

MASSACHUSETTS *Examination and Endorsement* Boston, July 9-12 Sec, Dr Robert C Cochrane, 37 State House, Boston 33

MICHIGAN * *Examination* Ann Arbor and Detroit, June Sec, Dr E C Swanson 118 Stevens T Mason Bldg, West Michigan Ave, Lansing 8

MISSISSIPPI *Examination* Jackson, June 24-25 *Reciprocity* Jackson, June 26 Asst Sec, Dr R N Whitfield, Old Capitol, Jackson

MISSOURI *Examination and Reciprocity* Jefferson City, May 31-June 1 Exec Sec, Mr John A Hailey, Box 4, State Capitol Bldg Jefferson City

NEBRASKA * *Examination* Omaha, June 17-19 Director, Mr Husted K Watson, Room 1009 State Capitol Bldg, Lincoln 9

NEVADA * *Examination and Reciprocity* Reno, June 4 Sec, Dr George H Ross, 112 North Curry St Carson City

NEW HAMPSHIRE *Examination and Reciprocity* Concord, Sept 11-13 Sec., Dr John S Wheeler, 107 State House, Concord

NEW JERSEY *Examination* Trenton, June 18-21 Sec Dr Patrick H Corrigan 28 West State St, Trenton

NEW MEXICO * *Examination and Reciprocity* Santa Fe May 20-21 Sec, Dr R C Derbyshire, 227 E Palace Ave, Santa Fe

NEW YORK *Examination* Albany, Buffalo, New York, Rochester and Syracuse July 9-12 Sec, Dr Stiles D Ezell, 23 South Pearl St, Albany 7

NORTH CAROLINA *Endorsement* Asheville, May 5, and Raleigh, June 18 *Written Examination* Raleigh, June 17-20 Sec Dr Joseph J Combs Professional Bldg, Raleigh

NORTH DAKOTA *Examination* Grand Forks, July 10-13 *Reciprocity* Grand Forks, July 13 Sec Dr C J Glaspel, Grafton

OHIO *Examination and Reciprocity* Columbus, June 13 15 Sec, Dr H M Platter, 21 W Broad St, Columbus

OKLAHOMA * *Examination* Oklahoma City, June 11-12 Sec Dr E F Lester, 813 Braniff Building, Oklahoma City

OREGON * *Examination* Portland, April 19-20 Office of the Board, 609 Failing Bldg, Portland

PENNSYLVANIA *Examination* Philadelphia and Pittsburgh July 10-12 Acting Sec, Mrs Marguerite G Steiner, Box 911, Harrisburg

RHODE ISLAND * *Examination* Providence June 27-28 Admin. of Professional Regulation, Mr Thomas B Casey, 366 State Office Bldg, Providence

SOUTH CAROLINA *Endorsement* Myrtle Beach, April 30 *Examination* Columbia, June 25-26 Sec, Mr N B Heyward, 1329 Blanding St, Columbia

SOUTH DAKOTA * *Examination and Reciprocity* Place not yet determined, July 16-17 Sec, Dr C B McVay, Yankton Clinic, Yankton

TEXAS * *Examination and Reciprocity* Fort Worth, June 24-26 Sec, Dr M H Crabb, 1714 Medical Arts Bldg Fort Worth 2

UTAH *Examination* Salt Lake City, July 11-13 Director, Mr Frank E Lees 324 State Capitol Bldg, Salt Lake City 1

VERMONT *Examination and Reciprocity* Burlington, June 20-22 Sec, Dr F J Lawliss, Richford

VIRGINIA *Reciprocity* Richmond, June 12 *Examination* Richmond June 13-15 Office of the Board, 631 First St, S W Roanoke

WASHINGTON * *Examination* Seattle, July 15-17 Sec, Department of Licenses, Mr Edward C Dohm, Olympia

WEST VIRGINIA *Examination* Charleston, April 22 Sec, Dr Newman H Dyer, State Office Bldg No 3, Charleston 5

WISCONSIN * *Reciprocity* Madison, April 26 *Examination* Milwaukee, July 9-11 Sec Dr Thomas W Tormey, Jr, 1140 State Office Bldg, Madison 2

WYOMING *Examination and Reciprocity* Cheyenne, June 3 Sec Dr F D Yoder, State Office Bldg, Cheyenne

ALASKA * On application in Anchorage and Juneau Sec Dr W M Whitehead, 172 South Franklin St, Juneau

GUAM *Subject to Call* Act Sec, Dr S F Provencher, Agana

HAWAII *Examination* Honolulu, July 8-9 Sec, Dr I L Tilden, 1020 Kapiolana St, Honolulu

VIRGIN ISLANDS *Endorsement* St Thomas, June 12 Sec, Dr Earle M Rice St Thomas

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA *Examination and Reciprocity* Tucson, June 18 Sec, Mr Herbert D Rhodes University of Arizona Tucson

ARKANSAS *Examination* Little Rock, May 6-7 Sec Mrs S C Dellinger Zoology Department, University of Arkansas Little Rock.

COLORADO *Examination and Reciprocity* Denver May 1-2 and Sept 4-5 Sec, Dr Esther B Starks, 1459 Ogden St, Denver 18

CONNECTICUT *Examination* New Haven, June 8 Exec Asst Mrs Regina G Brown, 258 Bradley St, New Haven 10

DISTRICT OF COLUMBIA *Examination* Washington, April 22-23 Deputy Director, Mr Paul Foley, 1740 Massachusetts Ave N W, Washington 6

FLORIDA *Examination* Miami June 8 Sec, Mr M W Emmel, Box 340, University of Florida, Gainesville

MICHIGAN *Examination* Detroit and Ann Arbor, May 10-11 Sec, Mrs Anne Baker 116 Stevens T Mason Bldg, W Michigan Ave, Lansing 15

MINNESOTA *Examination* Minneapolis, June 4-5 Sec Dr Raymond N Bieter, 105 Millard Hall, University of Minnesota, Minneapolis

NEBRASKA *Examination* Omaha, May 7-8 Director, Mr Husted K Watson, Room 1009, State Capitol Bldg, Lincoln 9

OKLAHOMA *Examination* Oklahoma City, April 19 20 Sec Dr E F Lester, 813 Braniff Bldg, Oklahoma City

RHODE ISLAND *Examination* Providence, May 15 Admin of Professional Regulation Mr Thomas B Casey, 366 State Office Bldg, Providence

SOUTH DAKOTA *Examination* Vermillion, June 7-8 Sec, Dr Gregg M Evans, 310 E 15th St, Yankton

WISCONSIN *Examination* Milwaukee, June 1, and Madison, Sept 20 Sec, Mr W H Barber, 621 Ransom St, Ripon

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*Basic Science Certificate required

GOVERNMENT SERVICES

AIR FORCE

Clerkships For Junior Medical Students—About 110 U S Air Force junior medical students in 57 medical schools and colleges will be afforded clinical and research training during their vacation periods this summer Clerkship programs of about eight weeks duration will be held in 18 U S A F hospitals, 2 aero medical laboratories, and the School of Aviation Medicine The purpose of the program is to provide professional experience that will be of value in the final year in medical school and during the students subsequent service as Air Force medical officers

ARMY

Personal—Col Francis E Council, M C, was placed on the retired list April 1, after having served more than 30 years on active duty His last assignment was as deputy director of the Armed Forces Institute of Pathology Colonel Council has left for Fort Worth, Texas, where, as a pathologist, he will be associated with John J Andujar, M D, of the Fort Worth Medical Laboratories

VETERANS ADMINISTRATION

Changes in Hospital Managers—Dr Thomas P Crane, manager, VA Hospital, Dearborn, Mich, became manager of the VA Hospital, San Francisco, May 5, succeeding Dr James G Donnelly, who retired April 30 Dr Earl P Brannon, manager, VA Hospital, Perry Point, Md, was transferred to the VA Hospital at Coatesville, Pa, as manager, to fill the vacancy created by the resignation of Dr Henry Luidens Replacing Dr Brannon at Perry Point will be Dr Lee G Sewall, manager of the Leech Farm Road VA Hospital in Pittsburgh To fill the vacancy created by the transfer of Dr Sewall, Dr Edward R Bennett, director, professional services, VA Center, Biloxi, Miss, will be reassigned as manager of the Pittsburgh hospital

Personal—Dr Stewart T Ginsberg, chief, psychiatry division, VA central office, Washington, D C, left May 1 to become Commissioner of Mental Health for the State of Indiana He also will be professor of psychiatry at the Indiana University School of Medicine in Indianapolis

PUBLIC HEALTH SERVICE

Poliomyelitis Vaccination Campaign—Representatives of the National Foundation for Infantile Paralysis, the American Medical Association, the Association of State and Territorial Health Officers, and the Public Health Service decided March 30 to undertake year-round campaigns to promote use of the poliomyelitis vaccine, Surgeon General Leroy E Burney announced

Consensus was that the goal of vaccinations for all persons up to the age of at least 40 should be maintained The group endorsed the recommendation that where there are limited supplies on hand special emphasis should be given first to the group under age 20 and pregnant women As supplies become available, vaccinations should then be carried out at least in persons through the age of 40 Local communities were urged to continue their planning so that they can make prompt use of the vaccine as it becomes available

The representatives of the organizations told the surgeon general that they did not believe a federally operated allocation system is necessary to achieve an equitable distribution of the vaccine The group recommended that the Public Health Service continue to collect and make available information on vaccine supplies as well as the status of community vaccination programs as a guide to communities and the manufacturers As of March 25 there were at least 3,220,000 cc, as compared with 4,765,000 cc on March 17, and 7,500,000 cc on March 10 It would appear that a considerable number of United States communities have delayed vaccination programs pending more definite assurance of supplies

The Public Health Service data will be transmitted to state health officers, the American Medical Association, the National Foundation for Infantile Paralysis, the vaccine manufacturers, and the public

In the course of the meeting, Public Health Service staff members summarized production figures to date and submitted the estimates of the manufacturers of prospective production between now and July 1 During the next three months it is estimated that between 35 and 40 million cubic centimeters will be produced

It was pointed out that, beginning last August, because of public apathy, unused vaccine began to pile up in manufacturers hands By Jan 1, it amounted to 26 million cubic centimeters By March 15, as a result of campaigns undertaken by the various groups, the backlog of 26 million had been shipped, moreover 10,500,000 cc of new supplies produced since the first of the year had also been sold Prospective production of 35 to 40 million cubic centimeters, added to the amount already made available since Jan 1, will total 75 to 80 million by July 1 This is equivalent to the total amount used during 1956 Total vaccine which will have been made available by July 1, since the beginning of the program, amounts to about 185 million cubic centimeters

There are 109 million persons up to 40 years of age in the United States The latest estimates indicate that over 56 million persons have had one or more injections, 46 million of these are children and youth under 20

Staff members of the service's Communicable Disease Center presented data collected by the Public Health Service's poliomyelitis surveillance unit on incidence These studies showed that during 1956 about three quarters of paralytic cases occurred in persons under 20 Within this group the highest rates occurred in preschool children It was agreed that special attention should be given in educational and promotional campaigns to encouraging vaccinations of the group under 5 years of age and to children in low-income families

The surgeon general asked that representatives of the groups meet with him again within the next few months to discuss detailed plans for the year-round campaign to promote use of the vaccine, particularly the third injections which will be due for millions of individuals in the fall

Survey of Indian Health Conditions—The House Appropriations Committee had asked the U S Public Health Service to determine the health needs of the American Indians, the measures necessary to bring Indian health to an acceptable level, and the estimated costs The report of this comprehensive survey of Indian health conditions, released April 14, stated that American Indians today have health problems resembling, in many respects, those of the general population a generation ago Diseases which are largely controlled among the general population still cause widespread illness and death among Indians and health services provided for them are far short of the need An adequate health program for Indians and natives of Alaska, the report said, would cost between 60 and 65 million dollars a year and 5 to 10 years would be required to bring the program to this level of operation

Health problems among the Indians that are of greatest urgency are tuberculosis, pneumonia and other respiratory diseases diarrhea and other enteric diseases, accidents, eye and ear diseases and defects, dental diseases, and mental illness Substandard and overcrowded housing and lack of sanitary facilities are major factors responsible for poor health among the Indians Water is often scarce and must be taken from contaminated sources The low educational level of many Indians on reservations is a factor More than half have family incomes of less than $1,000 a year

The report calls attention to efforts being made by the Bureau of Indian Affairs to improve Indian school facilities and attendance, to help Indians resettle in cities where employment opportunities exist, and—in cooperation with tribal groups—to improve opportunities for self-support on or near reservations

The Indian population within the continental United States is estimated to be 472,000, of whom 335,000 live in areas served by the Indian health program In addition, an estimated 35,000 natives of Alaska are also served by the program

The report points out that the Indian health program has been plagued by shortages of staff, poor and outmoded facilities, and lack of supplies and equipment Heavy demands of day-to-day medical care have tended to take precedence over needed preventive services Recommendations of the Public Health Service for an improved Indian health program include improvement and extension of medical services other than in hospitals, establishment of more field health units, expansion of preventive health services with particular attention to sanitation, control of tuberculosis, and other infectious diseases, additional preventive health services for infants and children, and additional dental and mental health services

National Library of Medicine—The 84th Congress, which created the National Library of Medicine within the U S Public Health Service and transferred to it the Armed Forces Medical Library also authorized the Board of Regents The board consists of 17 members Ten are appointed by the President from the fields of science medicine, and public affairs, and 7 are ex officio members from the federal government The chairman of the board must be elected from the appointed members At the first meeting of the board in Washington, D C, March 20, Dr Worth B Daniels, clinical professor of medicine, Georgetown University was elected chairman, Dr Champ Lyons, professor of surgery, University of Alabama Medical College, was elected vice-chairman, and Lieut Col Frank B Rogers, director of the National Library of Medicine was named secretary The board considered but deferred action on the selection of a site for the proposed new library building

In addition to Dr Daniels and Dr Lyons, the appointed members of the board are Dr Basil G Bibby, professor of dentistry University of Rochester, Dr Jean A Curran, Bingham Associates Fund, Boston, Dr Michael E De Bakey, professor of surgery, Baylor University, Dr Thomas Francis Jr, professor of epidemiology, University of Michigan, Miss Mary Louise Marshall, professor of medical bibliography, Tulane University, Dr I S Ravdin, professor of surgery, University of Pennsylvania, Dr Benjamin Spector, professor of anatomy, Tufts University, and Dr Ernest Volwiler, president, Abbott Laboratories

FOOD AND DRUG ADMINISTRATION

Symposium on Antibiotics—The fifth Annual Symposium on Antibiotics, sponsored by the Food and Drug Administration, in cooperation with the journals *Antibiotics and Chemotherapy* and *Antibiotic Medicine and Clinical Chemotherapy*, will be held Oct 2 4, 1957, at the Willard Hotel, Washington, D C Five copies of contributors abstracts of 200 words or less must be submitted to Dr Henry Welch, Food and Drug Administration, Washington 25, D C, no later than Aug 19, 1957 The abstract should explain briefly what was done in the study and the results obtained The original manuscript and one copy must be submitted by Sept 2, 1957 Manuscripts must be previously unpublished material They must be typewritten, double spaced, and on one side of 8½ by 11 in paper, with no more than six illustrations Bibliographies should conform to the style of the Quarterly Cumulative Index Medicus Generic names of drugs should be used throughout the manuscript except that, the first time the drug is mentioned, the trade name may be referred to in a footnote

DEATHS

Hume, Edward Hicks, New York City, born in hmednagar, India, May 13, 1876, Johns Hopkins University School of Medicine, Baltimore, 1901, did ostgraduate work at the University of Liverpool, England, 1901-1902, conducted research in bubonic lague in Bombay, India, for the U S Public Health ervice 1903-1905, a founder and organizer of the edical school and hospital of Yale-in-China, Changha, China, where he was senior physician at the Yale Hospital from 1906 to 1923, dean, Hunan-Yale Medial College from 1914 to 1927 and professor of medine from 1916 to 1923, when he became clinical proessor of medicine, serving until 1927, president of he Colleges of Yale-in-China at Changsha from 1923 o 1927, returned to America and became executive ice-president and trustee of the New York Postgraduate Medical School and Hospital, New York City, of which he was director, served as lecturer on Chinese medical history at his alma mater, where in 938 he delivered the second Hideyo Noguchi lecture, hen called back to China for three years by the Chiese National Health Administration to effect liaison etween the health work in the various areas in China, ecretary emeritus of the Christian Medical Council or Overseas Work in New York City, of which he ecame director in 1938, received two decorations rom the Chinese government, the Order of the Flourishing Grain, Third Class, in 1926, and the Order of the Blue Jade in 1941, trustee of Lingnan University, China, Hua Chung College, Russell Sage College in Troy, N Y, Yale-in-China Association, American Council of the Institute of Pacific Relations in New York, and a director of American Bureau for Medical Aid to China, member, board of managers, American Bible Society, fellow of the New York Academy of Medicine, member of the Chinese Medical Association and for five years chairman of its council on medical education, American Society for Tropical Medicine, New York Society for Tropical Medicine, American Association of the History of Medicine, New York Society for Medical History, Phi Beta Kappa, Psi Upsilon, and Sigma Xi, an associate member of the American Medical Association, among his honorary degrees were an M A from Yale in 1912, and LL D degrees from Jefferson Medical College, Philadelphia, in 1923, and the University of Hong Kong, China, in 1925, author of "The Chinese Way in Medicine" and Doctors Courageous", joint author of Valiant Adventurer", in 1946 was given the Norton Medical Award for his book "Doctors East, Doctors West, for nine years assistant editor of the *China Medical Journal*, died in the Gaylord Farms Sanatorium, Wallingford, Feb 9, aged 80

Dunning, Henry Sage, New Canaan, Conn, born in Scarsdale, N Y, July 7, 1881, New York University College of Dentistry, New York City, 1904, Columbia University College of Physicians and Surgeons, New York City, 1911, in 1916 one of the original founders of the School of Dental and Oral Surgery at Columbia University, where he was chairman of the organizing committee, professor of oral surgery, for many years member of the administrative board, and at the time of his death professor emeritus, served on the faculty of Columbia University College of Physicians and Surgeons, member of the Medical Society of the State of New York and the American Laryngological, Rhinological and Otological Society, an associate member of the American Medical Association, fellow of the American College of Surgeons, specialist certified by the American Board of Otolaryngology and the American Board of Plastic Surgery, during World War I served overseas with a Presbyterian Hospital unit attached to the British and later became assistant chief of the maxillary surgery section, American Expeditionary Forces, during World War II was active in fund raising to supply mobile dental equipment for the British and Australian forces, and taught oral and plastic surgery to medical and dental officers of the armed forces at the Columbia-Presbyterian Medical Center, where he was chief of the oral surgery clinic, in March 1948, on his retirement as an active professor at Columbia, was honored by medical and dental associates at a dinner at which he received many tributes and a gold wrist watch, in 1949, when a plaque was installed at the Columbia dental school, he again received special honors, in 1953, he received a distinguished service award at the 25th anniversary celebration of the center, was an attending oral surgeon at the Manhattan Eye, Ear and Throat Hospital in New York City, consultant in oral surgery at many hospitals, including the Jersey City Medical Center in Jersey City, Hackensack (N J) Hospital, and St Luke s Hospital, St Vincent's Hospital, New York Foundling Hospital, and the Roosevelt Hospital in New York City, died Feb 10, aged 75, of coronary disease

Pleadwell, Frank Lester, Capt, U S Navy, retired, Honolulu, Hawaii, born in Taunton, Mass, Aug 9, 1872, Harvard Medical School, Boston, 1896, appointed assistant surgeon in the medical corps of the Navy and entered the Naval service on Oct 24, 1896, after completing more than 33 years active service, retired from the Navy Dec 22, 1929, awarded the bronze medal for service on board the USS Nashville during the Spanish-American War, the Spanish Campaign Badge for serving in Cuba, recommended for the Navy Cross for meritorious service during World War I, and received the Order of Commander of the Order of the British Empire for services rendered during World War I, delegate of U S Navy at International congresses on Nomenclature of Diseases, Paris, and Alcoholism, London, 1909, technical adviser to American delegation at Geneva in July, 1929, delegate of U S government and chairman, American delegation, XI International Congress, History of Medicine at Zagreb, Belgrade, Sarajevo, and Dubrovnik, Yugo-

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⊕ Indicates Member of the American Medical Association

slavia, 1938, fellow of the American College of Physicians and the American College of Surgeons, past-president of the Association of Military Surgeons of the United States, consultant of the Honolulu County Medical Library Association, member of the Honolulu Symphony Society, service member of the American Medical Association, co-editor of 'Life and Works of Edward Coote Pinkney' and "Life and Works of Joseph Rodman Drake", died in the Tripler Army Hospital Jan 30, aged 84, of cerebral hemorrhage

Weiss, Benjamin Paul, Philadelphia, Jefferson Medical College of Philadelphia, 1907, clinical professor of neurology at his alma mater, specialist certified by the American Board of Psychiatry and Neurology, an associate member of the American Medical Association, consultant in neurology and psychiatry, Norristown (Pa) State Hospital, and Germantown Dispensary and Hospital, consultant, Pottsville (Pa) Hospital, died Feb 18, aged 72, of coronary thrombosis

Triplett, Jacob S ⊕ Harrisonville, Mo , University of Michigan Department of Medicine and Surgery, Ann Arbor, 1891, served as chief of staff at the Memorial Hospital, where he died Feb 4, aged 92, of chronic nephrosclerosis

Turner, Charles A , Woodson, Texas, Dallas Medical College, 1904, died in the Shackelford County Hospital, Albany, Nov 24, aged 76

Utts, Charles William, Connellsville, Pa , Western Pennsylvania Medical College, Pittsburgh, 1905, died in the Connellsville (Pa) State Hospital Jan 19, aged 80, of cerebral hemorrhage

Vanderslice, Augustus M , Lincoln, Neb , Nebraska College of Medicine, Lincoln, 1909, died Jan 4, aged 88, of coronary occlusion

Vandiver, Howard Asberry, Reno, Nevada, Creighton University School of Medicine, Omaha, 1921, service member of the American Medical Association, veteran of World War I and II, served on the staffs of St Mary's Hospital at North Platte, Neb , and the Veterans Administration Hospital in Phoenix, Ariz , on the staff of the Veterans Administration Hospital, where he died Jan 7, aged 61, of perforation of the esophagus

Verbrycke, J Russell Jr ⊕ Washington, D C , Georgetown University School of Medicine, Washington, D C , 1906, formerly associate professor of clinical medicine at his alma mater, member of the American Gastro-Enterological Association, fellow of the American College of Physicians, for many years consultant at Garfield Memorial Hospital, died Feb 5, aged 71, *of chronic myocardosis*

Waldie, George McLeod ⊕ Ishpeming, Mich , Tufts College Medical School, Boston, 1911, member of the Industrial Medical Association, American College of Chest Physicians, and the American Trudeau Society, resigned in 1939 as medical superintendent of the Copper Country *Sanatorium in Houghton, died in St* Anthony's Hospital, St Petersburg, Fla , Dec 13, aged 66, of arteriosclerotic heart disease

Walters, George Warren, Pittsburgh, Western Pennsylvania Medical College, Pittsburgh, 1899, died Jan 4, aged 80, of coronary occlusion

Weems, George Emerson, Apalachicola, Fla , Atlanta College of Physicians and Surgeons, 1904, died in the W T Edwards Tuberculosis Hospital in Tallahassee Nov 26, aged 75, of pulmonary tuberculosis

Wegner, William Godfrey ⊕ South Bend, Ind , College of Physicians and Surgeons of Chicago, School of *Medicine of the University of Illinois*, 1898, died Nov 17, aged 83, of arterioscerotic heart disease

Weintrob, Joseph Roosevelt ⊕ Atlantic City, N J , Jefferson Medical College of Philadelphia, 1937, specialist certified by the American Board of Ophthalmology, member of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology, veteran of World War II, chief of eye service for Atlantic City Hospital, died in Margate City Jan 28, aged 44

Wells, William Monroe, Orlando, Fla , Meharry Medical College, Nashville, Tenn , 1914, died in Lakeland Jan 21, aged 67

White, Charles Augustus ⊕ St Louis, Medical College of Indiana, Indianapolis, 1898, retired district surgeon, Wabash Railroad, on the staffs of the Incarnate Hospital and the Missouri Baptist Hospital, where he died Jan 13, aged 91, of duodenal ulcer with hemorrhage and arteriosclerotic heart disease

Whitehead, Charles Edgar ⊕ Bozeman, Mont , John A Creighton Medical College, Omaha, 1908, veteran of World War I, on the staff of the Bozeman Deaconess Hospital, died Dec 18, aged 73, of hypertension and congestive heart failure

Whiteside, Charles Thomas ⊕ Kayford, W Va , Chicago College of Medicine and Surgery, 1915, veteran of World War I, served on the staff of the Charleston (W Va) General Hospital, died in Venice, Fla , Feb 25, aged 68, of pleural effusion

Whitley, James Roger ⊕ Winder, Ga , Emory University School of Medicine, Atlanta, 1938, interned at the Baroness Erlanger Hospital in Chattanooga, Tenn , where he served a residency, died in St Mary's Hospital, Athens, Jan 5, aged 44, of myocarditis and arteriovenous fistula

Wiegmann, William Henry, New York City, New York University Medical College, New York City, 1898, died Dec 28, aged 80, of carcinoma of the bladder

Winn, George Elisha ⊕ Defiance, Ohio, University of Nashville (Tenn) Medical Department, 1900, Ohio Medical University, Columbus, 1901, veteran of World War I, died Jan 18, aged 79, of a heart attack

Woodbridge, James Warren ⊕ Fresno, Calif , College of Physicians and Surgeons, Keokuk, Iowa, 1893, member of the Iowa State Medical Society, veteran of World War I, *formerly practiced in Emmetsburg,* Iowa, where he was president of the Palo Alto County Medical Society, died Jan 2, aged 87

FOREIGN LETTERS

CANADA

Hospital Insurance for Ontario —Up to the end of anuary, the health insurance situation in Canada had emained fairly static for several months The proposal of the federal government for cost-sharing in a univeral hospitalization or other health insurance plan deended on a favorable vote of the majority of the 10 rovinces of Canada agreeing on provincial plans aceptable to the federal government The first to agree ere British Columbia, Alberta, and Saskatchewan, hich already had some form of hospital insurance For implementation of the federal plan, however, participation of one of the two thickly populated provinces of Canada, either Ontario or Quebec, was ssential It now looks as if this condition soon may be satisfied, for the Ontario legislature in January worked out a plan that would cover hospital insurance hroughout the province Premier Frost, of Ontario, stimated that this plan would cost about 300 million dollars annually and that it could start by Jan 1, 1959, provided that the federal government was prepared o play its part The suggestions of the Ontario government are outlined in a brochure entitled Hospital Care Insurance for Ontario—The Proposal of the Ontario Government' This monograph begins with a description of the background of hospital-care insurance, stressing the significance of hospital care in health services It shows that the crippling costs of hospital care have been met in Ontario by 68% of the population who have insured themselves, particularly hrough the Blue Cross Substantial numbers of the population, however, are uninsurable The Ontario government believes that everyone should have available a method of budgeting hospital costs that can be maintained at all stages of life, regardless of age, health, or economic status Premier Frost sees the role of his government as that of meeting only absolutely essential needs Many will wish to insure themselves beyond these basic needs It is in this field that private enterprise will be allowed full scope

In the brochure, the Ontario government takes issue with the federal government on the latter's proposals Ontario intends to include mental and tuberculosis hospitalization costs, although the federal government excludes these Ontario does not agree with the unwillingness of the federal government to share administrative costs, nor does she agree to the federal cost-sharing formula Administrative details of the plan have not yet been published A three-man hospital services commission was set up in Ontario and charged with the development of a balanced and integrated system of hospital and related health facilities Presumably this commission will administer hospital insurance as and when it develops The carrier could be Blue Cross or a new government corporation Hospitals will continue to be owned by local communities and charitable organizations

The Ontario plan is designed to cover inpatient diagnostic services, standard ward-care in active treatment hospitals (but not medical practitioners' fees), care in convalescent hospitals and hospitals for the chronically ill, specific outpatient services, and, either simultaneously or later, outpatient diagnostic services Benefits will be available to all Ontario residents who have insured themselves by paying a personal premium Benefits will be available to all persons in receipt of public assistance and also to medically indigent persons It is intended that membership in the plan will ultimately be compulsory for all residents who can afford to pay This plan differs in some details from the federal proposal, but discussion has taken place between the two governments, with a view to ironing out these differences In any case the differences do not seem great enough to warrant a federal refusal to share in the plan On Feb 5, the possibility of nationwide health insurance was brought a step nearer by Newfoundland's acceptance of the federal government's plan This makes a total of 5 of the 10 Canadian provinces accepting the federal offer A sixth will probably join within the next few months, in which case the plan is virtually assured of a start

Mental Hospital Care —In 1954 the National Scientific Planning Council of the Canadian Mental Health Association started a study of mental health services in Canada, because the present design and administrative pattern of these services was believed to be out of date The Committee on Mental Health Services was set up, and its first report dealing with mental hospital care has appeared The committee points out that in the decade 1941 to 1951, the bed capacity in Canadian psychiatric services rose by about 6,000 beds, while the number of patients rose by over 10,000 Professional personnel increased three to four times, and the nursing staff became 50% larger, while per capita daily expenditure rose from 96 cents to $2 40 In this decade psychiatry may be said to have established itself in Canada, but there is still much to be done and a great need for more mental hospital beds and trained psychiatric personnel of all kinds In the last few years the situation has been reviewed by several provinces and also at local levels, but there appears to have been a more or less uniform failure to implement the recommendations contained in these surveys The present report suggests that the reasons for this have been, in part, economic Tensions between different parties interested in mental health facilities have played a part, while lack of a clear program and clear bases for recommendations have hampered development The apathetic or negative public attitude and the tendency to lose sight of mental health services in a general public health plan also retarded development

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The items in these letters are contributed by regular correspondents in the various foreign countries

The committee concludes that overcrowding in mental hospitals must be publicized Services must develop on a regional basis in natural demographic and geographical areas, within limits of provincial administration No more large mental hospitals or additions to existing large mental hospitals should be built Future facilities must be in close proximity to medical centers and particularly to teaching centers The committee envisions regional mental hospitals of not more than 400 or 500 beds integrated with regional medical facilities in centers of population In addition to the hospital some form of community clinic will continue to play a central role in future development of community mental health programs The mental hospital must be a part of an integrated unit, including the general hospital the medical school clinics, social agencies, and private practitioners

How Hard Does the General Practitioner Work?—It would appear from figures obtained by a questionnaire in Ontario that the working hours of the Canadian general practitioner are similar to those of his counterpart in the United States The average general practitioner sees about 25 patients daily, works an 11-hour day, and spends three nights a week in his office The general practitioners who worked the hardest (11 8 hours a day) were those in towns of 5,000 to 50,000 population The general practitioners in rural areas worked a 10 5-hour day, whereas those in the big cities worked a 10 7-hour day Nearly half of the general practitioners had secretarial help, generally on a full-time basis, but 20% still relied on their wives for such work It should be noted that the secretaries or nurses worked only 6 2 hours a day on an average Nearly 60% of the practitioners still do some of their own laboratory work, including urine testing

In Defence of Nursing—Early in the winter the *Canadian Medical Association Journal* published an article, entitled "In Defence of Nursing," in which modern nursing education was severely criticized by two physicians Briefly the physicians charged that, whereas Florence Nightingale was most preoccupied with the character and personality of nurses, her present-day successors seem much more concerned with academic distinction and technical abilities Learning at the bedside has given place more and more to classroom learning, within which much basic science has been included The authors questioned whether much of the material taught in the basic sciences was found valuable by nurses later on They contended that there is only one basic science of nursing and that is simply nursing They were perturbed at the growing tendency of nursing educators to advise five-year courses, more academic work, and a decreased quantity of ward experience The physicians suggested that the time had come to analyze the educational requirements of a nurse and also her personal qualities In rebuttal of some of these allegations, the director of the School of Graduate Nurses, McGill University, states that the ideal of bedside teaching is difficult to attain because of the vast amount of work to be done in the average ward As a matter of expediency, much essential subject matter must be taught in the classroom, and limitations of time and teaching personn make some of this teaching unsatisfactory The fa that the average hospital demands so much of th students time in carrying out numerous routine job essential in the care of the sick cuts down the tim available for teaching The five-year college progra decried by the physicians has been set up to prepar properly qualified educators who need a large measur of knowledge if they are to work effectively wit others Students of nursing in hospitals should be prepared not only to take their place beside the hospita bed but also to take their place in community nursin in the broadest sense, hence there is a need for independent nursing schools, outside the framework of th hospital, in which care of patients will not conflic with education of students

Sensitivity Tests for Antibiotics—Testing microorganisms for sensitivity to antibiotics is an essentia but difficult procedure Use of the dry antibiotic disk introduced as a simple and accurate means of screening the sensitivities of micro-organisms, has bee widely accepted in hospital laboratories, but ther have been disquieting reports of gross discrepancies i results obtained with these disks Greenberg and co-workers, therefore carried out a survey of commercia antibiotic disks They first manufactured control o reference disks of their own and developed technique for extraction of the antibiotic from them for assay purposes They then obtained samples of commercia disks and assayed the latter The results showed tha the potencies of most commercial disks were not i accordance with the labeled claims Greenberg and co-workers tested 92 lots of commercial paper-type disks and found that 61 of them had less antibiotics than claimed, 9 had more, and 22 met the labeled claims There was enormous variation between results of different tests In one series, a batch of penicillin disks labeled 10 units contained only a trace of antibiotic, while another batch manufactured by a different company had over 30 units Steps are being taken under the Canadian Food and Drugs Act to insure that only properly manufactured disks are distributed in Canada Manufacturers of antibiotic disks will be required to show that, within the limits of error of the assay concerned, their disks contain the precise amount of antibiotic as labeled throughout the period recommended for its use

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Micrococcic Pneumonia.—Recent publications show that micrococcic pneumonia is becoming more common in children and increasingly resistant to known therapeutic and antibiotic agent. Briggs (*Canadian Medical Association Journal*, Feb. 15, 1957) records 27 cases of primary micrococcic pneumonia. Only 5 of the children were more than 5 months old; 12 died. Presenting symptoms included cough in 16 patients, cyanosis in 8, and fever in 18; there was a history of previous infection in 10. Complications were common, occurring in 22 of the 27 patients, and included abscess, empyema, pneumothorax, pericarditis, and osteomyelitis. Fourteen of 25 patients had nasopharyngeal swabs positive for Micrococcus pyogenes var. aureus, and in all cases the pleural fluid was positive for these organisms, whereas the blood culture was positive only in one case. Examination of antibiotic sensitivities showed that only chloramphenicol and erythromycin were effective, other antibiotics being of little value. The authors believe that micrococcic pneumonia is related to initial contact of the newborn child with the Micrococcus. They found M. pyogenes var. aureus in nasal swabs of 84% of people connected with the maternity unit and in many of these subjects the pathogen was already resistant to the more common antibiotics.

Aldosterone and Hypertension.—Some interesting experiments on the production of experimental hypertension by injection of aldosterone into rats are described in the *Canadian Journal of Biochemistry and Physiology* for January. First a method was evolved for the isolation of aldosterone from commercial aqueous adrenal cortical extracts. A chloroform extract of the hormone was separated by chromatography by a method yielding 4 mcg. per milliliter of original extract. Aldosterone was injected subcutaneously into young rats at first in doses of 0.5 mcg. per 48 hours and later in doses of 1 mcg. per 24 hours. After 6 to 12 weeks a significant rise in blood pressure occurred. This continued until after about five or six months and reached a maximum averaging 75 mm. above control values. Administration of saline solution instead of drinking water had no significant effect on the result. Rats that had undergone an adrenalectomy responded in a similar way. A direct effect on the kidneys seems to be excluded by the fact that proteinuria developed in the rats only after the rise in blood pressure. These results contradict those of Gross and co-workers, who used a much larger dose of aldosterone over a shorter period and produced no rise in blood pressure. It was suggested that excesses of aldosterone above a certain level required to produce changes are without further effect. It may be that the hypertensive animals represent the experimental counterpart of human essential hypertension. This view is supported by reports that patients with essential hypertension have been found to excrete increased quantities of aldosterone.

UNITED KINGDOM

National Health Service Crisis.—What little hope there was of the medical profession's claim for increased remuneration being settled without provoking a major crisis in the National Health Service has been well-nigh obliterated by the action of the Prime Minister. Without warning or consultation with the profession, he announced that the government proposes to set up a royal commission on the remuneration of physicians. The committee is to consider the following: (1) how remuneration from all sources now received by physicians and dentists taking any part in the National Health Service compares with the remuneration received by members of other professions, by other members of the medical and dental professions, and by people engaged in occupations connected with these professions, (2) what, in the light of the foregoing, should be the proper current levels of remuneration of physicians and dentists by the National Health Service, and (3) whether and, if so, what arrangements should be made to keep that remuneration under review and what recommendations should be made. Neither the names of the members of the commission nor the date by which the commission shall start its investigations were announced. The profession's reaction to this heavy-handed and maladroit move on the part of the government has been sharp and practically unanimous. Even those who were not happy about the timing of the claim for increased remuneration believe that not only is the profession being treated with gross discourtesy but also that more fundamental issues are at stake. What is particularly galling to so many physicians is that it should be a conservative government that is treating them in this way. The inevitable reaction is that if this is how a conservative government treats the profession then there is no hope for professional freedom in the future.

A royal commission is a particularly inappropriate means for investigating a pay claim, as such commissions are notorious for the time they take to publish a report. The Prime Minister's action, therefore, appears to be simply an astute governmental step for postponing a decision for as long as possible. Presumably, because of the almost universal opposition to his action, the Prime Minister said that the appointment of this commission does not preclude some interim adjustment. This concession, offered with obvious reluctance, is still nothing more than a vague promise

The committee concludes that overcrowding in mental hospitals must be publicized Services must develop on a regional basis in natural demographic and geographical areas, within limits of provincial administration No more large mental hospitals or additions to existing large mental hospitals should be built Future facilities must be in close proximity to medical centers and particularly to teaching centers The committee envisions regional mental hospitals of not more than 400 or 500 beds integrated with regional medical facilities in centers of population In addition to the hospital, some form of community clinic will continue to play a central role in future development of community mental health programs The mental hospital must be a part of an integrated unit, including the general hospital, the medical school, clinics, social agencies, and private practitioners

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Aldosterone and Hypertension—Some interesting experiments on the production of experimental hypertention by injection of aldosterone into rats are described in the *Canadian Journal of Biochemistry and Physiology* for January First a method was evolved for the isolation of aldosterone from commercial aqueous adrenal cortical extracts A chloroform extract of the hormone was separated by chromatography by a method yielding 4 mcg per milliliter of original extract Aldosterone was injected subcutaneously into young rats at first in doses of 0 5 mcg per 48 hours and later in doses of 1 mcg per 24 hours After 6 to 12 weeks a significant rise in blood pressure occurred This continued until after about five or six months and reached a maximum averaging 75 mm above control values Administration of saline solution instead of drinking water had no significant effect on the result Rats that had undergone an adrenalectomy responded in a similar way A direct effect on the kidneys seems to be excluded by the fact that proteinuria developed in the rats only after the rise in blood pressure These results contradict those of Gross and co-workers, who used a much larger dose of aldosterone over a shorter period and produced no rise in blood pressure It was suggested that excesses of aldosterone above a certain level required to produce changes are without further effect It may be that the hypertensive animals represent the experimental counterpart of human essential hypertension This view is supported by reports that patients with essential hypertension have been found to excrete increased quantities of aldosterone

UNITED KINGDOM

National Health Service Crisis—What little hope there was of the medical profession's claim for increased remuneration being settled without provoking a major crisis in the National Health Service has been well-nigh obliterated by the action of the Prime Minister Without warning or consultation with the profession, he announced that the government proposes to set up a royal commission on the remuneration of physicians The committee is to consider the following (1) how remuneration from all sources now received by physicians and dentists taking any part in the National Health Service compares with the remuneration received by members of other professions, by other members of the medical and dental professions, and by people engaged in occupations connected with these professions, (2) what, in the light of the foregoing, should be the proper current levels of remuneration of physicians and dentists by the National Health Service, and (3) whether and, if so, what arrangements should be made to keep that remuneration under review and what recommendations should be made Neither the names of the members of the commission nor the date by which the commission shall start its investigations were announced The profession s reaction to this heavy-handed and maladroit move on the part of the government has been sharp and practically unanimous Even those who were not happy about the timing of the claim for increased remuneration believe that not only is the profession being treated with gross discourtesy but also that more fundamental issues are at stake What is particularly galling to so many physicians is that it should be a conservative government that is treating them in this way The inevitable reaction is that if this is how a conservative government treats the profession then there is no hope for professional freedom in the future

A royal commission is a particularly inappropriate means for investigating a pay claim, as such commissions are notorious for the time they take to publish a report The Prime Minister s action, therefore, appears to be simply an astute governmental step for postponing a decision for as long as possible Presumably, because of the almost universal opposition to his action, the Prime Minister said that the appointment of this commission does not preclude some interim adjustment This concession, offered with obvious reluctance, is still nothing more than a vague promise

One of the complications is that the new Minister of Health appears to be almost as completely in the dark as to the Prime Minister's intentions as the press and the medical profession The result is that the representatives of the British Medical Association are becoming involved in a game of shuttlecock between the Prime Minister's office and the Ministry of Health The attitude of the association is still that the claim for increased remuneration should be settled by consultation Should such consultation fail, they have agreed to submit the matter to arbitration There seems little, if any, hope now of the government agreeing to this procedure, and at its meeting on Feb 28 the Council of the Association adopted the following resolution

The Council fully supports the decision to convene a special conference of representatives of local medical committees and to recommend to that conference that, unless the Government agrees to an immediate and *satisfactory settlement of the profession's claim or to* arbitration, general practitioners throughout the country will be advised to send in their resignations from the service " This special conference is not likely to be held before April A decision to call on all general practitioners to resign from the service would require three months notice on the part of practitioners, so that no decisive action can be taken until well after midsummer

On this question of mass resignation, the profession is by no means united The views of those who believe that such conduct is scarcely in keeping with professional standards of conduct are well epitomized in an editorial in the *Lancet* which states

> In our view this proposal is wrong we think that even if it were 100% successful such action would still do great harm to the profession—more harm than could be done by any Government In offering this opinion we do not mean that doctors need remain in a service in which they lose confidence we think that those who, now or later, want to leave the N H S should certainly do so and we agree that if any substantial exodus were in prospect the professional organizations would need to do all they could to help both their members and the public to overcome the difficulties thus arising But a genuine decision by individual doctors to return to private practice would be quite different from a withdrawal, or the threat of a withdrawal organized for political ends This we regard as an alien procedure, out of keeping with the character of any profession, and especially that of medicine

Desperate Remedy —The *Times* described as a desperate remedy the decision of the General Medical Services Committee of the British Medical Association to arrange for the progressive withdrawal of general practitioners from the National Health Service This decision has been taken after a further meeting between the Prime Minister and the two joint-chairmen of the profession s negotiating committee, at which the Prime Minister talked airily about inflation and the present economic state of the country and, on awkward questions being asked, took refuge behind the Royal Commission, which is proving just as effective a smoke screen as was expected The members of the Royal Commission are notable for their admirable qualities as citizens, but their qualifications for this particular task are difficult to establish A special conference of local medical committees, to be held on April 30 *will have before it the recommendation* from the General Medical Services Committee of the British Medical Association that, as there has been neither a satisfactory settlement of the profession's claim nor the submission of that claim to arbitration, (1) the resignation of all National Health Service general practitioners will be collected forthwith and held, and (2) the committee's plan for a progressive withdrawal of general practitioners from the National Health Service will be put into effect until such time as a satisfactory settlement is achieved or the dispute is referred to arbitration

The association will take steps to obtain the resignations of all National Health Service general practitioners These resignations will be collected, held, and put into effect initially in a number of selected areas The number of such areas will be progressively increased if the need arises Practitioners in the areas selected will be asked to notify executive councils on July 2 *of their intention to withdraw from the medical list* as of Oct 2 They will be asked not to withdraw from the obstetric list This means that after Oct 2 with the exception of maternity service, general practice under the National Health Service will cease in these areas

During October, former National Health Service patients will be treated privately, but no private fees will be asked for them The public will be informed that physicians in these areas are anxious to give the government one last chance to honor the promises made to the profession when they entered the National Health Service in 1948, and that they are doing everything possible to avoid a position in which their patients suffer financially Nevertheless, if the government still declines to agree to a satisfactory settlement or to arbitration it will be necessary, after November, for general practitioners in those areas to charge their patients a standard token fee, which it is recommended should be 70 cents for office consultation and $1 for a house call Patients are to be given receipts for these fees and advised to take them to the nearest national insurance office in order that the government may have an opportunity of refunding the sums involved Physicians will have discretion to waive or modify these fees in special cases, such as in the case of old age pensioners Neither do these arrangements preclude the introduction of contributory schemes for medical treatment in areas where such arrangements may be practicable If a settlement is not reached within a reasonable time, practitioners will be compelled to make full-scale charges for their services

As general practitioners who resign from the service cannot issue prescriptions on the official prescription form, they will be advised to write them on private forms It will be explained to the public that, although the government has broken its contract with the physicians, it still has an obligation to the patient It is, therefore, for the government to decide whether it will refuse to accept prescriptions issued in this way No national insurance certificates will be issued General practitioners will issue their own private certificate forms Practitioners in the selected areas who resign *from the service will be given financial support* and their remuneration will be supplemented from the defense trusts in accordance with the amount of their last quarterly checks from the National Health Service executive council, less the total amounts received from private practice and maternity fees Physicians in all areas are being asked to agree to an additional levy of about 4 cents per patient per quarter This will be paid into a special account, and any balance not used will be repaid when the dispute is settled

Physicians employed by local authorities and hospitals will refrain from any steps which might embarrass their general practitioner colleagues Industrial medical officers will be asked to give similar moral support At the moment of writing it is difficult to assess what the reactions of general practitioners will be to this move on the part of the British Medical Association The more responsible sections of the press, as represented by the *Times* and the *Economist,* are more critical of the attitude of the government than of that of the British Medical Association The fact that the Prime Minister simultaneously is calling for arbitration in settlement of the outstanding disputes in the shipbuilding and engineering industries, but refuses it to the physicians, has caused a flood of sympathy for the doctors That the drastic decision to try and arrange a mass withdrawal from the National Health Service is by no means a unanimous decision is indicated by the fact that the North Northumberland branch of the association has decided by a majority vote against withdrawing from the service, on the grounds that it would be against the interests of the country to take such action at present There is a growing consensus that this will probably be the feeling of most general practitioners who, much as they dislike the disgraceful manner in which they have been treated by the government, are still old fashioned enough to believe that anything remotely resembling strike action is not worthy of the profession of medicine

Fatigue in Mothers —In his annual report for 1956, Dr John Maddison, the health officer for Twickenham, says that in the infant welfare clinics young mothers seem to complain more of fatigue than their mothers used to do These women are those with one or two young children They usually come from good homes where living standards are high It is suggested that the struggle for the maintenance of high standards of health and well-being, the possession of a good home and furniture, the keeping up of appearances with the neighbors, the maintenance of a high standard of infant and child welfare, and the pressure on all sides from the welfare services and women's magazines may exhaust mothers too much It is further suggested that our striving for excellence should not be so strong and enthusiastic as to be inimical to the welfare of those for whom it is intended

Glutethimide in Obstetrics —Abbas (*Brit M J* 1 563, 1957) reports giving 250 mg of glutethimide to each of 100 women between the ages of 16 and 43 years early in the first stage of labor when it was certain that labor was definitely occurring and that uterine contractions were causing some distress Nine of the 100 patients received more than one dose A control group of 100 women with about the same age distribution and in the same stage of labor were each given 2 Gm of chloral hydrate The patients were questioned and examined every two hours and their subjective (pain) and objective (restlessness or relaxation) reactions evaluated Glutethimide was found to be an effective sedative and showed less evidence of gastric irritation than did chloral hydrate It greatly reduced the requirements of meperidine hydrochloride subsequently required for analgesia and additional sedation, the difference between the amounts needed after glutethimide and chloral hydrate being statistically significant It alleviated apprehension, thereby encouraging relaxation and cooperation, and produced no evidence of any maternal or fetal hazard The average duration of all stages of labor in primiparas and multiparas was slightly less than that after chloral hydrate had been given

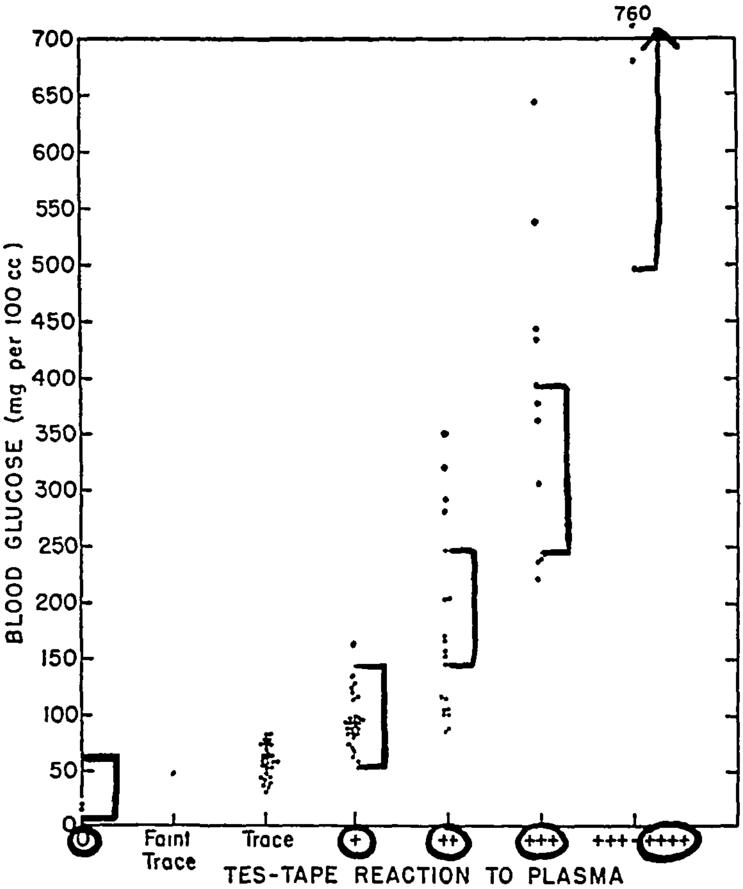
Dried Smallpox Vaccine —The fact that glycerinated smallpox vaccine deteriorates rapidly at room temperature has always been a major difficulty in hot climates in the absence of adequate refrigeration A stable, dry preparation could be stored and would be available in large quantities, should an epidemic make mass vaccination desirable Tests have been made by Cross and co-workers (*Lancet* 1 464, 1957) on dried smallpox vaccine stored at 37 C and 45 C for up to two years The vaccine consists of a suspension of vaccinia virus, purified by differential centrifugation and treated with phenol, in a solution of 5% peptone in distilled water The suspension is then lyophilized and sealed under vacuum in phials of neutral glass The vaccine, stored under the conditions mentioned, still produced 100% of successful vaccinations in Air Force personnel and showed only a slight decrease in potency by laboratory titration It should now be possible for every country to have dried smallpox vaccine which will withstand many months' or even years' exposure to tropical temperatures and which will last more or less indefinitely in an ordinary refrigerator

Nerve Damage from Thiopental —A Scottish jury rejected a patient's claim for damages against a physician for alleged negligence in giving an anesthetic The patient stated that the physician, when giving her an intravenous injection of thiopental sodium just before an operation, allowed the needle to penetrate the left median nerve, as a result of which the nerve was damaged As a consequence the patient said that she had suffered great pain in her left arm and hand and that she had some difficulty in abducting the arm In addition, it was claimed that sensation in the areas of the hand supplied by the median nerve was defective In defense it was stated that there was no evidence that the median nerve had been penetrated by the needle It was admitted, in view of the injuries of the patient, that some penetration of the nerve may have occurred, but it was contended that this was not due to negligence on the part of the physician Two expert witnesses stated that any piercing of the median nerve could have been due to involuntary muscular movements within the arm, which the physician could not have anticipated

CORRESPONDENCE

ESTIMATION OF BLOOD GLUCOSE CONCENTRATION WITH ORDINARY TES-TAPE

To the Editor —We were interested in the article by Dr Holbrooke S Seltzer in the Nov 24, 1956, issue of THE JOURNAL, page 1234 The disadvantage of his method is that it requires the separation of plasma (or serum) from the patient's blood obtained by venipuncture, this may be inconvenient for patient and doctor We have found the use of capillary blood equally satisfactory About 0 5 ml of blood can easily be collected from an ear or finger prick into a small tube (plain oxalate or heparin) After about 20 minutes enough plasma or serum will have separated to do the test as described by dipping the tape We found it usually possible to make the readings shown below



Correlation of blood glucose level with Tes-Tape reaction to undiluted plasma Brackets and circled readings indicate Baron-Oakley reading ranges

Tes-Tape Determination with Use of Capillary Blood

Tes Tape Reading	Blood Sugar (True Sugar Mg /100 Ml)
0	less than about 60
+ (1/10%)	about 60 150
++ (1/4%)	about 150 250
+++ (1/2%)	about 250 400
progressing to ++++ (2%)	500 and above

The results were absolutely reliable at either end of the scale

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The above letter was referred for comment to Dr Seltzer, who replied as follows —ED

To the Editor —The procedure of Drs Baron and Oakley is an adaptation of the original Tes-Tape method, which reduces still more the materials required to run the test and thereby enhances its convenience In general the reading ranges agree with those I found on undiluted plasma, as shown in figure 2 in my paper in THE JOURNAL, Nov 24, 1956 That figure is reproduced here with the addition of brackets to represent Baron's reading ranges There is one important difference between his readings and mine He gets no color reaction at all below 60 mg per 100 ml, whereas if we should find none at all we would rush to give glucose intravenously, since we consistently get faint trace" or "trace" shades of green in the blood glucose range of 20 to 60 mg per 100 ml It is very easy to pick up these gradations, since there is quite a gap in color reaction between the no-change of a "0 reaction and the full pastel green of a 1-plus" I do not known how to explain the discrepancy between our respective figures, since plasma and serum glucose values are essentially the same

Another point deserves comment When matching the convenience of capillary blood procurement against venipuncture plus centrifugation, one must keep in mind the clinical situation in which one is employing the test Our usual situation is in the emergency room or on the diabetic ward, where we want to know the approximate glucose level within five minutes and where venipuncture equipment and a centrifuge are available In talking about the method to various groups I have pointed out that a practitioner making a house call, with no centrifuge at hand, could draw venous blood and let it clot while completing his examination, then test the serum In summary, I think their procedure is a useful modification of the original Tes-Tape method However, I also think that a much more accurate reading of glucose values below 60 mg per 100 ml is 0 to trace" instead of straight "0"

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POLIOMYELITIS VACCINE AND RECURRENT HERPES SIMPLEX

To the Editor —Smallpox vaccination has long been used with sporadic success in the treatment of recurrent cases of herpes simplex The following observations on two patients who came in contact with poliomyelitis viruses may be of some value in the future treatment of recurrent herpes simplex

A 25-year-old man gave a history of repeated attacks of herpes simplex on the lower lip since childhood These episodes would occur about every three months, but the patient had never previously seen a physician for any form of treatment During the first seven months of 1956, he was employed in the department of virology of Temple University Medical Center as a laboratory technician During the course of his occupation, he would use pipets in transferring tissue cultures containing the HeLa cell which was impregnated with all three types of poliomyelitis virus On many occasions this transfer would result in the accidental ingestion and swallowing of the liquid cultures The patient had his last episode of herpes simplex one month prior to his employment Since his accidental ingestions of the poliomyelitis viruses, he has had no recurrent episodes of his fever blisters The second patient was a 20 year-old man with a history of recurrent herpes simplex since childhood, it occurred six or seven times each year at the termination of a common cold Two standard-dose injections of poliomyelitis vaccine were given to the patient during the summer of 1956, and to this date there has been no recurrence of the fever blisters

These observations suggest that poliomyelitis vaccine, like smallpox vaccine, may prevent recurrent episodes of herpes simplex

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RADIOTHERAPY DOSAGE

To the Editor —The article "Combination Therapy of Retinoblastoma with Triethylene Melamine and Radiotherapy," by George A Hyman and Algernon B Reese, in The Journal, Dec 8, 1956, page 1368, is a significant contribution to the literature on this rare tumor Few institutions could assemble 50 children with retinoblastoma for report to the medical world The work reported once again showed an important relationship between chemotherapy and radiotherapy

Those of us who see only rarely a patient with retinoblastoma will refer to the results in this large series of patients In using the article as a reference, there are striking limitations to the description of the radiation therapy To describe radiotherapy dosage as "5,600 to 8,000 r in air to the tumor or '2,400 r in air to the tumor is both inaccurate and insufficient for those readers who would like to duplicate the technique Of invaluable aid to the reader of this article would be a definition of the terminology 'r in air to the tumor" It would be of still more value for the reader to know the physical factors of the radiation employed

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The above letter was referred to one of the authors of the article, who requested an associate to reply —Ed

To the Editor —Dr Algernon B Reese has referred to me, as one of the radiotherapists now participating in a project to evaluate the combined effect of triethylene melamine and radiotherapy in the treatment of retinoblastoma, the letter requesting greater detail concerning the technique of radiation employed in this study

The following method is applicable only to those patients with bilateral tumors who have had one eye removed, and where there is no evidence of tumor invasion of the optic nerve of the enucleated eye On the fifth to seventh day after enucleation, external irradiation to the remaining eye is instituted A contour of the head is obtained and a plan is drawn up with reference to the estimated area of interest, i e, the entire globe posterior to the lens to include at least 1 cm of the optic nerve Two portals are used The nasal portal measures 2 0-2 5 cm in diameter and is placed in the enucleated orbit against the bridge of the nose and angled so that the beam of radiation will pass posterior to the lens of the eye under treatment This angle usually approximates 24 to 30 degrees A localization film is obtained showing that the exit point of the beam is posterior to the outer canthus The lateral portal may be a 2 5-cm circle but preferably is a rectangle 3 by 4 cm, with the long axis oriented in the cephalad-caudad direction The anterior margin of this port is at the lateral limbus, again to ensure passage of the beam posterior to the lens

We plan on delivering a tumor dose of 3,500 r to the entire retina posterior to the lens in a three-week period The patients are treated daily to each portal, the daily air dose being based on the desired daily tumor dose The total air dose to each portal varies depending upon the measurements obtained for the individual case and is usually 2,400 r to 2,800 r The factors are 220 kv, 15 ma, 50 cm target-skin distance, 1 0 mm Cu half-value layer

If it is desired to treat both eyes, an enucleation not having been performed, the nasal portal cannot be used The tumor dose of 3,500 r in three weeks is then achieved by the application of bilateral lateral portals with resultant higher air and skin doses because of the greater separation between the ports

The article by Martin and Reese published in the *Archives of Ophthalmology* (33 429-439 [June] 1945) includes diagrams showing the positioning of the patient and the application of the portals as described above

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MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Clinical Significance of Hyperaminoaciduria B Pépin Presse med 64 2091-2094 (Dec 15) 1956 (In French) [Paris]

Hyperaminoaciduria may be due to any 1 of 3 mechanisms 1 It may represent an overflow from an excess of amino acids in the blood, as in the hyperaminoaciduria and hyperaminoacidemia of severe liver deficiency Any significant protein catabolism, in so far as it increases aminoacidemia, may also lead to hyperaminoaciduria, as in cachexia, generalized cancers, extensive burns, hyperthyroidism, or adrenal corticotherapy 2 An obvious renal defect may, by leading to defective tubular absorption, be responsible for an excess of amino acids in the urine even though the amino acid blood level is normal This combination may be seen in certain forms of nephritis and pyelonephritis and in visceral manifestations of lupus erythematosus 3 Hyperaminoaciduria may be primary, that is, it may appear in patients whose amino acid blood level is normal and who have no demonstrable renal lesions This type of aminoaciduria, which is the most interesting, is found in cystinuria, in the Toni-Debre-Fanconi syndrome, in hepatolenticular degeneration, and in alkaptonuria and phenylpyruvic oligophrenia

The Toni-Debré-Fanconi syndrome is a heredofamilial condition characterized by an innate error of metabolism believed by most authors to be the result of a congenital defect in the renal tubular epithelium that leads to an increased urinary excretion of amino acids, peptides, glucose, and inorganic phosphorus The symptoms can be explained in the light of the disturbed tubular reabsorption Thus, the urinary loss of phosphorus and amino acids is responsible for the bone disease, glycosuria accounts for the loss of weight and frequent acidosis and explains why some of the patients present findings suggesting hyperinsulinism, and finally the chronic loss of amino acids seems to be the essential cause of the cirrhosis of the liver that is found in some patients and that, therefore, may be regarded as a nutritional cirrhosis

Hepatolenticular degeneration is a heredofamilial condition in which the 2 essential elements are hyperaminoaciduria and a disturbance in copper metabolism Opinions differ as to which of these 2 elements is the primary and fundamental disturbance in patients with hepatolenticular degeneration Another heredofamilial disease characterized by a disturbance in the urinary excretion of amino acids is cystinuria, in which the amino acid metabolism and aminoacidemia are normal but there is an excessive excretion of cystine, lysine, arginine, and ornithine The specific hyperaminoaciduria of cystinuria is explained by a congenital disturbance in the reabsorption of these amino acids Cystinuria is accompanied by a tendency toward lithiasis, but it is otherwise compatible with health Alkaptonuria and phenylpyruvic oligophrenia are linked to a disturbance in the metabolism of the aromatic amino acids, phenylalanine and tyrosine

Hepatic hyperaminoaciduria is the result of an amino acid overflow into the blood, which in turn is caused by a failure of deamination in the liver Severe hyperaminoaciduria involving significantly increased excretion of all the amino acids and especially a massive cystinuria is found essentially in the major forms of hepatic insufficiency (acute yellow atrophy, severe viral hepatitis, and decompensated cirrhosis), but, even in the milder forms of liver disease, a slight or moderate increase in aminoacidemia is reflected in an increased aminoaciduria Secondary hyperaminoaciduria has also been found in various forms of intoxication, in progressive muscular dystrophies, and in syndromes characterized by hypercorticalism

Myocardial Infarction in a Military Population P G Keil and L V McVay Jr U S Armed Forces M J 8 166-172 (Feb) 1957 [Washington, D C]

In the Army and Air Force, an electrocardiogram is required as a part of the annual physical examination of officers 40 years of age and over The authors were surprised at the number of men whose initial tracings showed evidence of previous infarction The medical histories of these men dated the attack in about half of the cases This observation provoked an investigation of myocardial infarction in a military population Being particularly interested in advanced coronary artery disease in younger persons and in the retainability of military personnel in the service after infarction, the authors reviewed the clinical records of 107 patients hospitalized with myocardial infarction in a U S Air Force hospital during the 5-year period terminating Dec 31, 1955 Eighty-seven of these were members of the military service on active duty The remainder were retired personnel or dependents of active-duty personnel Thirty-eight infarctions occurred in patients below the age of 40 Most of the 107 infarctions occurred during the summer months, while the patients were sleeping or resting They usually occurred without a history of angina in persons who were normotensive but inclined to be obese and who smoked heavily, drank moderately, had a sedentary job, and had a family history of cardiovascular disease Thirteen of the 87 active duty

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library American Medical Association Periodical files cover 1948 to date only and no photoduplication services are available No charge is made to members, but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time, and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them military personnel died as a result of infarction, 24 returned to duty, and 50 were retired with an average disability rating of 80% The authors believe that military personnel suffering relatively mild myocardial infarction, without objective or subjective sequelae, should be returned to duty

The Significance of Nonbacterial Thrombotic Endocarditis An Autopsy and Clinical Study of 78 Cases R A MacDonald and S L Robbins Ann Int Med 46 255 273 (Feb) 1957 [Lancaster, Pa]

The subject of nonbacterial thrombotic endocarditis has been confused by the use of different terms Among the names that do not denote the true nature of the condition are terminal endocarditis, marantic endocarditis, endocarditis simplex, and degenerative verrucal endocardiosis It has been repeatedly stated that nonbacterial thrombotic endocarditis is only an insignificant finding at autopsy The chief purpose of this report is to show that nonbacterial thrombotic endocarditis has clinical as well as pathological significance Clinical and autopsy studies were made on 78 patients with this disease In 11 emboli were found that were considered to have arisen from valvular vegetations and to have caused or contributed to the patient's death The vegetations were believed to result from the thrombi formed from blood within the cardiac chambers on nonspecific areas of focal fibrocollagenous degeneration of valves Embolization is considered to result from a portion of adherent thrombus breaking off into the circulation The most commonly associated diseases in this series were cancer (36%), heart failure (30%), and vascular thrombosis (27%) The possibility that the endocardial vegetations of this condition represented sterilized vegetations of bacterial endocarditis in patients given antibiotics before death was investigated and did not prove to be the case It is important to differentiate nonbacterial thrombotic endocarditis from bacterial and rheumatic endocarditis showing some degree of activity and from atypical verrucous endocarditis of Libman-Sacks Generally speaking, this presents no difficulty The main feature is the lack of cellular reaction in the involved valve in nonbacterial thrombotic endocarditis in contrast to that in the other types The chief value of clinical recognition of nonbacterial endocarditis is in differentiating embolic cerebral vascular disease from hemorrhage and thrombosis and in directing attention to associated and, perhaps, causative conditions

The Valsalva Maneuver as a Test of Cardiac Function Pathologic Physiology and Clinical Significance R Gorlin, J H Knowles and F Storey Am J Med 22 197-212 (Feb) 1957 [New York]

In 7 normal persons and in 71 patients with various forms of heart and lung disease, forced expiration from the inspiratory midposition was performed against a pressure of 40 mm Hg and the breath held for 12 seconds The maneuver was done with the patient in the recumbent position and then with the patient on the tilt table with the head or the legs elevated 30 degrees Both directly recorded and auscultated blood pressure levels were measured in the 78 persons Other tests of circulatory and pulmonary function were performed as indicated, including cardiac catheterization in 42 persons The clinical and physiological results were correlated A normal response to the Valsalva maneuver, with an initial rise of the systemic blood pressure followed by a fall in mean and pulse pressures, with an overshoot on cessation of the maneuver, was observed in the normal persons, in pregnant women, and in cardiac patients without heart failure or vascular stenosis

An abnormal response, with an initial rise of the systemic systolic and pulse pressures, which remained elevated, and with an overshoot rarely occurring on cessation of the maneuver, was observed in 23 patients with left or right ventricular failure or tight aortic or mitral stenosis (calculated or measured valve area equal to 1 sq cm or less) There was good correlation with abnormalities in other tests of cardiac function, including elevated pulmonary capillary wedge and/or right atrial pressures Twenty-six patients showed an intermediate response, in these, a change from a normal to an abnormal response occurred with change from the head-up position to the horizontal position or to that with the legs elevated, or the response was inconstant in degree and frequency These cardiac patients had either mild left ventricular failure, mild to moderately severe mitral stenosis (calculated or measured valve area from 0 8 to 1 5 sq cm), or tight aortic stenosis, there was 1 patient with chronic cor pulmonale Correlations with findings on tests of cardiac function other than that of elevated pulmonary wedge pressure were not striking

The difference between the normal and the abnormal response to the Valsalva maneuver was believed to depend on a flattened ventricular-function curve or a flattened valvular pressure-flow curve The simplicity and reliability of the Valsalva maneuver as a clinical test using an ordinary blood pressure cuff is emphasized Its greatest clinical value lies in the fact that, in the absence of severe right ventricular failure, it can detect early left ventricular failure, tight mitral stenosis, or tight aortic stenosis

The Clinical Evaluation of Patients with Goiter M P Kelsey Mississippi Doctor 34 231-235 (Feb) 1957 [Booneville, Miss]

To learn more about the differential diagnosis of the various types of enlargements of the thyroid, the records of 323 patients with goiters were reviewed These patients had been admitted to the University of Texas hospitals from 1944 to 1955, and none of them had had previous thyroid surgery They represent a selected group, many being admitted only for evaluation by radioiodine or serum protein-bound iodine determinations, and others were referred because cancer was suspected either in the thyroid or in some other site A table in which the initial diagnosis is compared with the final diagnosis shows that it is difficult to ascertain whether a goiter is diffuse or nodular or even whether there is any thyroid enlargement Regarding the history, it is pointed out that weight loss and nervousness are not always present in hyperthyroidism, but intolerance for heat and good appetite are almost universally present Auricular fibrillation, intractable diarrhea, muscular weakness, and diplopia may be the first indications of hyperthyroidism In the physical examination, the neck should be exposed to an indirect light that produces light shadows and the patient's chin should be elevated Since the thyroid is attached to the trachea, swallowing causes the thyroid to move, whereas other structures usually remain immobile

Structures mistaken for goiters included supraclavicular fat pads, bulky sternomastoid muscles, and metastatic nodules Palpation is performed while the patient flexes the head slightly forward to relax the sternomastoid muscles During palpation the examiner should note the size and consistency of the thyroid, whether there are nodules, substernal extension or fixation to surrounding structures Exaggeration of normal lobulations may be erroneously diagnosed as nodular goiter This is particularly true in diffuse toxic goiter and in chronic thyroiditis Sixteen of 35 cases with chronic thyroiditis were diagnosed correctly as were 103 of 111 cases of hyperthyroidism Eighteen patients with metastasis from thyroid cancer had no papable goiter In twenty-six of 68 patients with cancer of the thyroid, the disease was diagnosed correctly Although there were clinical features suggestive of cancer in these 26 patients, in 148 patients with nodular goiter there were no physical signs of cancer In these patients surgical exploration revealed 24 additional carcinomas (an incidence of 16%)

Tuberculosis Among University Students A 35 Year xperience J A Myers, R E Boynton and H S iehl Ann Int Med 46 201-217 (Feb) 1957 [Lancaster, Pa]

A clinic for diagnosis and treatment of diseases of the chest was established at the University of Minnesota Student's Health Service in 1920 In an enrollment of 155,021, there were 7,530 students and faculty members who were examined for chest conditions Although many nontuberculous conditions were diagnosed and treated, tuberculosis presented the chief problem The diagnosis of pulmonary tuberculosis was made in 1,055 persons, 155 had tuberculous pleurisy with effusion, and 61 had extrathoracic tuberculous lesions Diagnostic procedures included physical examination, inspection of x-ray film, bacteriological examination of the sputum, gastric washings, thoracotomy, and pulmonary biopsy

In the schools of nursing and medicine tuberculosis was most serious and constituted a natural experiment from which information was gained concerning the evolution of tuberculosis in adults It was found that first infections in adults behave like those in children The tuberculin test showed the presence of primary tuberculosis earlier than did any other examination Only persons who reacted to the tuberculin test later developed clinical disease Periodic examinations of persons who reacted to the test revealed clinical lesions when infection was minimal and in precontagious stages The tuberculin test has been routinely administered to all students entering the university since 1928 The incidence of persons who reacted to tuberculin increased in 1946, due in part to the return of war veterans from parts of the world where tuberculosis is still rife Although the incidence again decreased, it has fluctuated, probably because of those returning from the Korean war and because of the sizable number of students from other countries on the campus While many students have been exposed to tubercle bacilli in military service, those who became infected presented problems no different from those observed among the students who became infected in childhood Roentgenologic examination of the chests of those who reacted to tuberculin became routine in 1931 Clear roentgenograms of the chest never proved absence of tuberculosis To cast shadows, lesions must have sufficient consistency to obstruct x-rays These facts were established at autopsy and from resected pulmonary units Treatment ranged from bed rest and pulmonary collapse to antituberculous drugs and resection Primary pulmonary tuberculous infiltrates resolved regardless of treatment

Antituberculous drugs were given to a few patients in whom the tuberculin reaction became positive After 1 year of treatment, reversion to nonreaction resulted in 2 patients Preventive measures consisted in managing tuberculosis as a contagious disease Since a mild or severe attack does not result in dependable immunity no attempt was made to produce immunity artificially Since the early 1930s, rigid contagious disease technique has been employed in the care of tuberculous patients in the university hospital Tuberculosis was a serious problem among university personnel until 1938, when the Board of Regents passed a ruling requiring examination of nonacademic employees, and, in 1941, of academic employees The described tuberculosis control program has had phenomenal results Students no longer die from tuberculosis, and the morbidity rate has been reduced to a small number In the classes of from 1919 to 1932 in the school of medicine, 11 died and 92 had demonstrable tuberculous lesions, while only one in the past 14 years has presented a lesion large enough to cast a shadow

Etiology of Duodenal Ulcer I Relation of Specific Psychological Characteristics to Rate of Gastric Secretion (Serum Pepsinogen) H Weiner, M Thaler, M F Reiser and I A Mirsky Psychosom Med 19 1-10 (Jan -Feb) 1957 [New York]

The serum pepsinogen level was determined in each of 2,073 Army inductees Sixty-three with values in the upper 15% and 57 with values in the lower 9% of the blood-pepsinogen distribution were selected for special study Each of these was given the Rorschach, Blacky, Draw-A-Person, Cornell Medical Index, and Saslow tests and a complete upper gastrointestinal roentgenologic examination before being sent to basic training One hundred seven subjects were reexamined between the 8th and 16th week of basic training The 1st roentgenologic examination revealed healed duodenal ulcers in 3 subjects and an active ulcer in 1 The 2nd roentgenologic examination revealed active duodenal ulcers in 5 additional men All 9 subjects with peptic ulcer were in the upper 15% of the blood-pepsinogen distribution, 8 of them being in the upper 5% Evaluation of the psychological data revealed that subjects with peptic ulcer displayed evidence of major unresolved and persistent conflicts about dependency and oral gratification Classification of the selected test population into 2 groups on the basis of criteria derived from the psychological tests was found to correlate (85%) with the 2 groups (hyperpepsinogen and hypopepsinogen secretors) derived from the physiological tests The study indicates that neither a high rate of gastric secretion nor a specific psychodynamic constellation is independently responsible for development of peptic ulcer Together however, these 2 parameters constitute the essential determinants in the precipitation of peptic ulcer

Present State of Knowledge Concerning Effects of the Sulfonylurea Compounds in Diabetes Mellitus Report of the Committee on Summarization of the Conference H T Ricketts, F D W Lukens and M E Krahl Diabetes 6 91-92 (Jan -Feb) 1957 [New York]

The committee reporting found no convincing evidence that the sulfonylurea compounds increase utilization of glucose by peripheral tissues Studies of the effects of these substances on liver glycogen levels have given conflicting results, possibly because of differences in experimental conditions There is evidence that the sulfonylurea compounds inhibit the output of glucose from the intact liver, especially that derived from fructose and galactose and possibly that resulting from stimulation by glucagon and epinephrine On the other hand, in in vitro experiments with liver slices from normal fasted and fed rats, addition of these compounds to the medium did not affect glycogenolysis or glucose output The ordinarily glycogenolytic effect of glucagon and epinephrine in such slices appears to be inhibited by the drugs Prolonged medication of normal rats has been followed by a reduction in the glucose-6-phosphatase level of the liver but this effect was in no instance correlated temporally with the hypoglycemia It was not observed in the livers of alloxan diabetic rats Destruction of insulin either in the whole animal or in isolated liver preparations was not significantly reduced by concentrations of the drugs sufficient to cause hypoglycemia

The great preponderance of evidence indicates that these sulfonylurea compounds have no effect on the alpha cells of the pancreas While toxic dosages have resulted in a distinct decrease in the insulin content of the pancreas in dogs, so called therapeutic doses over long periods of time had no such effect Although the observations suggest a stimulating effect on the beta cells, the findings are not altogether consistent It is agreed that carbutamide and tolbutamide have no effect on the blood sugar level in the absence of insulin The question of whether insulin action is potentiated by these preparations cannot be satisfactorily answered by the clinical observations or animal experiments reported to date Insulin and the sulfonylureas differ in their effect on blood pyruvate The adrenalectomized animal (dog, cat, rat) treated with sulfonylureas has shown an exaggerated hypoglycemic response whereas the hypophysectomized animal has not Thus, the response of such animals to these drugs is different from their response to insulin The failure of hypophysectomized animals to display extreme hypoglycemia after administration of the drugs appears to be inconsistent with the previously cited studies suggesting stimulation of beta-cell activity

Prolonged administration of sulfonylurea compounds has resulted in thyroid hyperplasia, at least in animals, and with carbutamide, in a decrease in uptake of radioiodine by the thyroid in man Data thus far reported indicate that the drugs being studied have no measurable effect on the anterior hypophysis or the adrenal cortex of man or animals

Previous experience indicating that the drugs are most effective in older, obese patients with mild diabetes of relatively short duration has been confirmed They have some hypoglycemic activity in exceptional cases of juvenile diabetes Short-term tests of response to the drugs are moderately useful, but not infallible, in predicting a favorable result of maintenance therapy Side-reactions have consisted chiefly of skin rashes, gastrointestinal disturbances, leukopenia and generalized allergy, in the order given Well-marked hypoglemic reactions have been reported in several patients given drug therapy without injected insulin There have been reports of 8 deaths during treatment, with 2 each ascribed to sulfonamide sensitivity and liver involvement

SURGERY

Arterial Embolism H B Shumacker Jr and H S Jacobson Ann Surg 145 145-152 (Feb) 1957 [Philadelphia]

The experiences of the department of surgery at the Indiana University Medical Center with arterial embolism to the aorta and peripheral arteries, excluding only those to the brain and viscera, over a period of about 8 years have been studied in relation to the factors influencing the outcome The 55 patients (65 ischemic limbs) fell into two groups (1) 34 who were treated by direct arterial surgery and (2) 21 not so treated The results in the group of patients not operated on were poor Four of the 21 patients (19%) died Amputation was required in 13 of the 26 affected extremities and would probably have been required in 3 more if 2 other patients had survived Two patients with impaired circulation but with viable extremities after embolism obtained good results from sympathetic denervation Five additional patients survived with fair circulation Reasonably satisfactory circulation followed, therefore, in only 27% of the 26 affected limbs

Far better results were obtained in the group treated by arterial surgery The mortality was no higher than in the other group, only 7 (20 5%) of the 34 patients having died The circulation was adequately restored in 79% (31) of the 39 ischemic limbs in this group in contrast to the rate of only 27% in the other The mortality in both groups seemed to be related to the underlying disease and to the age of the patient It was comparatively low in patients with rheumatic heart disease and much higher in patients with other basic diseases, as is shown by the occurrence of only 2 deaths (7%) in 27 patients with rheumatic heart disease as compared with 6 deaths (26%) in 23 patients with arteriosclerotic heart disease, hypertensive heart disease, and myocardial infarction

Patients with *embolism to the main arteries of the arm* should not be neglected because of an optimistic feeling that the affected extremities are almost certain to survive with adequate circulation Amputation was required in 4 of 6 such patients not treated by embolectomy, and a 5th died with apparently satisfactory circulation The results of embolectomy are the better the sooner the operation is performed, but excellent restoration of circulation can be secured even as late as 48 hours after embolism because survival of the limb depends primarily not on the interval between embolism and operation but on the presence or absence of propagated thrombus in the distal arterial tree Experience gained in this study suggests that, when patients with impaired circulation but with still viable extremities are treated much later after embolism, a bypass grafting procedure may be preferable to embolectomy

Development of Cancer in Mixed Tumors of Salivary Glands E S Judd Postgrad Med 21 112-116 (Feb) 1957 [Minneapolis, Minn]

Two hundred ninety-six patients with primary mixed tumor of the parotid gland were followed up for long periods Four died of factors associated with their tumors, such as repeated local recurrence with deep invasion and hemorrhage Eighty percent of parotid tumors are mixed tumors They are benign and remain so Certain mixed tumors may be benign for many years Then a malignant change may suddenly occur The histological findings in these tumors of the parotid or submaxillary gland are identical Radical removal of submaxillary tumors, which is accomplished readily, is to be contrasted with the frequently inadequate extirpation of parotid tumors The rate of recurrence of mixed tumors is reduced by radical removal that permits nearly complete treatment when cancer is discovered

The Importance of the Emotional Factor in Rhinoplastic Procedures F T Hill J Maine M A 48 41-43 (Feb) 1957 [Brunswick, Maine]

Rhinoplastic procedures were performed in 4 patients—a young married woman, a 51-year-old woman, a 17-year-old girl, and a 20-year-old man The 1st patient had a lateral displacement of the nasal bone caused by an old fracture There was no functional disability Apparently she was much disturbed by the appearance of her nose and requested that it be corrected A Joseph type of rhinoplasty restored the nose to a symmetrical midline position, but it did not solve her mental problem, and a year later the patient took her own life The 2nd patient had sustained a severe compound fracture of the nasal and maxillary bones as a result of a fall While fairly satisfactory symmetry was obtained by surgery, it was not perfect as the entire right nasal bone was destroyed in the accident This patient was quite content with the result, proving that the emotional factor generally is of less importance in the traumatic type of case when repair is imperative, recovery from the injury with its fear of unsightly deformity makes any improvement more readily acceptable

The 3rd patient had a beautiful face, marred only by a severe saddleback deformity of the nose She was shy and easily embarrassed, had a tendency to withdraw from her playmates, and had a marked inferiority complex A rhinoplasty using a bone graft from the pelvic brim inserted through a vestibular incision, corrected the deformity, without any external scar Correction of the deformity gave the patient confidence in herself No longer backward and shy, she took her rightful place in her young world The 4th patient had an exaggerated "corkscrew" type of nose with almost complete nasal obstruction The butt of jokes and horseplay at the hands of his contemporaries and adults, he had left school at an early age and had a menial job sweeping the floors of a factory Improvement of the facial contour, obtained by a rhinoplasty in 2 stages, made the patient a changed person—more extraversive and sociable

These cases are cited to show the significance of the emotional status of the patient in determining the success or failure of rhinoplastic procedures Except for traumatic cases of comparatively recent origin, the psychological factor assumes the greatest importance in the decision for or against rhinoplasty Mere desire for alteration of facial contour, when there is little or no interference with function should be viewed with caution On the other hand, attempts to correct abnormalities of function may fail if an accompanying external deformity is neglected The importance of gross deformities, especially in the young and the effect on the personality of the patient are illustrated by the cases of the last 2 patients

Low Hemoglobin Levels in Men G W Hervey, E P Adashek and S T Gibson Am J M Sc 233 126-130 (Feb) 1957 [Philadelphia]

Presumably, the men who volunteer to give blood for medical use feel physically able In the course of 2 or 3 weeks, persons between the ages of 18 and 60 years present themselves in adequate numbers and from adequately diverse social and economic backgrounds to represent the larger population stratum from which male donors come They do not typify the corresponding general male population, since the latter embraces not only seemingly healthy men but also the hospitalized, the ill but not hospitalized, and others who for physical or medical reasons refrain from coming to blood collection centers This distinction should be remembered when contemplating the fact that, even though the men who respond may be considered above average from the standpoint of apparent health, low hemoglobin levels cause numerous persons to be disqualified Data pertaining to 4,993 men who volunteered to give blood in Los Angeles in July, 1955, disclose that low hemoglobin levels caused 8 17% to be disqualified This, compared with about 4% for a sample of 14,304 men reporting in January, 1956 indicates a strong seasonal variation The July data appear to signify that, mainly as the result of self-screening by many Los Angeles donors, the more numerous the past donations the fewer were the rejections Persisting against such selectivity, however, the percentage of disqualifications in general tended to be higher for older men Persons who, having previously given blood, waited at least 4 months before again donating were rejected less often than those returning in less than 4 months The authors caution against placing cause-and-effect interpretations on the relations revealed by such mass data and stress the need of further study to establish possible connections between environmental factors and the incidence of low hemoglobin levels

Air Embolism in Course of Pneumoperitoneum Precautions Against It P E Guarinello Rev brasil tuberc 25 119-130 (Jan) 1957 (In Portuguese) [Rio de Janeiro]

Air embolism is the most serious complication of pneumoperitoneum In some patients the symptoms may appear as simple syncope immediately followed by severe or even fulminant symptoms In others the symptoms are fulminant at the onset Cardiac, respiratory, and cerebral symptoms appear simultaneously the cerebral symptoms predominating The author reports 5 cases of air embolism occurring in a series of 127 pneumoperitoneums The condition was benign in 3 patients, severe in 1, and fulminant in 1 After the occurrence of these 5 cases, the author evolved a technique that consists of injecting air at a rate of not more than 20 cc per minute The injections are always given on the left side, near or below the umbilicus If symptoms suggesting air embolism appear, the procedure is immediately stopped and resumed a few days later In 4 of the authors patients air embolism occurred when the quantity of air injected reached between 60 and 180 cc In the fatal case with a fulminant course, the embolism occurred when the quantity of air injected reached 180 cc The treatment consisted in placing the patients immediately in an extreme Trendelenburg position and giving cardiac stimulants

Results of Surgical Treatment of the Postcholecystectomy Syndrome K Lehmann Acta chir scandinav 112 40-46 (No 1) 1956 (In English) [Stockholm, Sweden]

A follow-up examination of 94 patients treated for postcholecystectomy syndrome revealed that 54 required a second operation Explorative choledochotomy was performed on 8 Transduodenal splitting of Oddi s sphincter was tried in 5 patients Anastomosis between the deep bile ducts and the duodenum was performed on 26 Calculi were found in the remaining 15 patients, and they made a complete recovery Less than 50% of the patients improved after the other operations Persistent pains recurred despite the presence of a well-functioning anastomosis, as proved by cholangiography The correctness of the theory of dyskinesia of Oddi s sphincter was not confirmed by the author, since no improvement was seen after this operation The poor results that were obtained in 24 of the patients was due to their psychic conditions 9 proved to be drug addicts, and 15 had various mental disorders Reoperation should be limited to patients whose complaints have a definite organic basis and in whom stones are present

Surgical Treatment of Lymphedema of the Upper Extremities G H Pratt and A A Levine A M A Arch Surg 74 183-188 (Feb) 1957 [Chicago]

Lymphedema in the upper extremity is often caused by carcinoma of the breast Congenital lymphatic collections may occur as a cystic hygroma or the essential or Milroy's type A nonmalignant lymphedema of the upper extremity may follow radical breast operations, owing to operative trauma and the removal of the lymph channels and nodes There may also be edema from some temporary interference with the venous return Low-grade infection, too, may cause temporary postoperative swelling This paper deals with lymphedema of the traumatic as well as the congenital type The symptoms are mainly a massive enlargement of the part To this swelling are added skin changes, muscular atrophy, and sometimes damage to nerves from pressure and a pull on the shoulder girdle The lymph accumulates in the skin, fat, and superficial and deep fascia but rarely in the muscle The edema due to interference with the venous return can be treated by elevation and support For the lymphedema due to infection the use of antibiotics is helpful If malignancy involves the nodes and has not been completely removed, the lymphedema will progress The authors found and reported previously that the lymph collections in lymphedema begin from 0 4 to 0 5 mm beneath the epidermal layer The superficial epidermis is not diseased and can be removed by the electric dermatome at a depth of 0 038 mm The rest of the superficial and deep fascia is excised to remove all fatty tissue, even that between the muscles The epidermis is replaced directly on the denuded muscles The principle of this operation is to remove the skin in such thin layers that it is free from lymphatic accumulation

A case is reported to illustrate how extensive nonmalignant lymphedema of the arm can become Swelling in the left hand and arm had developed in this woman after a radical mastectomy for mammary carcinoma 12 years earlier After deep x-ray treatment, the swelling of the arm became progressively worse It was necessary for an attendant to carry her arm The skin was removed at 0 038 mm The lymph, fat, and superficial and deep fascia were excised and a skin graft applied The operation was performed in 2 stages Exactly how much lymph tissue was removed is unknown, but the patient lost 90 lb (40 8 kg) in weight So much fluid ran out during the operation that the surgeon and his assistants were literally soaked in lymph The operation was effective and has been performed on 14 other patients After the operation the part must be supported Hyperkeratinization often develops, and, since the epithelial layer is thin, it frequently heaps up with keloids Dermatitis develops, and the patients are subject to fungus infections, which are controlled with soaks of mild solutions of potassium permanganate Care must be taken to prevent contracture of the fingers, elbow, and shoulder during recovery Since the lymph defense is removed, antibiotics often are required in patients with repeated attacks of sepsis

Fatal Pseudomonas Septicemias in Burned Patients K Markley, G Gurmendi, P M Chavez and A Bazan Ann Surg 145 175-181 (Feb) 1957 [Philadelphia]

One of the major difficulties encountered in the course of the Peru burn project was a high late mortality, especially in burned children The problem of late deaths after burns has been especially serious in Peru because of the high incidence of fatal Pseudomonas aeruginosa (Bacillus pyocyaneus) septicemias A characteristic skin lesion appearing in the nonburned area was frequently associated with the Ps aeruginosa septicemia seen in Peru The study group consisted of 172 children and 103 adults with burns involving 10% or more of the body surface Ps aeruginosa septicemia in 29 of the children and 3 of the adults was accompanied by the development of cutaneous lesions in the nonburned area The lesions were usually vesicular or nodular Some patients had both types The vesicular type, which occurred in 72% of the children with cutaneous lesions, usually appeared from 3 to 8 days after burning, although in a few rare cases it was observed between the 8th and 43rd day after the burns were sustained The initial vesicle was followed in rapid succession by many others of the same kind in nonburned areas Only 1 patient had lesions (2) of this type in the burned area No lesions were found on the mucosa, soles, or palms Death generally occurred from 24 to 48 hours after the appearance of the first vesicle

Subcutaneous nodules appeared in the other 28% of the patients with cutaneous lesions, coming on at any time from the 5th to the 28th day after burning Several such nodules were usually present, but their number was always much less than that of the superficial necrotic type The condition of these patients for the most part deteriorated less rapidly than that of the others, death occurring from 2 to 12 days after the appearance of the first nodule The patients had temperatures up to 39 C (102 2 F), great thirst, marked abdominal distention, and depression of the central nervous system regardless of the type of skin lesion Death was preceded by coma, subnormal body temperatures, rapid and shallow respiration, and progressive circulatory failure that led to death in shock

Laboratory studies revealed anemia and hypoproteinemia in every patient, and evidence of hyponatremia, hyperkalemia, and metabolic acidosis was almost always present Characteristic hemorrhagic and necrotic lesions were also found in the viscera of 34 badly burned patients at autopsy Negative blood cultures for Ps aeruginosa were found in only 3 children in the entire group of 29 children and 3 adults with skin lesions Not all of the patients who died from Ps aeruginosa septicemia, however, presented cutaneous or visceral lesions, only 22 of 28 badly burned patients with blood cultures positive for Ps aeruginosa who came to autopsy between 1951 and 1956 presented such lesions No effective therapy has been found to prevent the death of patients with Ps aeruginosa septicemia An attempt is now being made to prevent the development of septicemia by the prophylactic administration of polymixin after the patient has passed the first 48-hour period

NEUROLOGY & PSYCHIATRY

Three Hundred Alcoholics Treated in a Psychiatric Hospital P Bernard, R Lecuyer and G Bles Semaine méd [Suppl to Semaine hôp Paris] 33 45-49 (Jan 14) 1957 (In French) [Paris]

Three hundred men with alcoholism were treated at a psychiatric hospital between May 1, 1955, and Aug 15, 1956 The largest number of patients (50 54%) were between the ages of 40 and 50 years, 21 86% were between 30 and 40, 7 88% were less than 30 years of age, and 19 72% were over 50 years of age Detoxication treatment was given for the first time to 76 33% of the patients, and 23 67% had been detoxified on previous occasions at the same hospital or at other hospitals The patients were subdivided into 3 groups according to their clinical conditions The 1st group (78 70% of the patients) were in a state of alcoholic intoxication but did not have mental disturbances in the usual sense, except for temporary confusion The 2nd group (17 87%) had primary mental disturbances that became manifest after detoxication treatment and after the disappearance of the symptoms directly caused by alcohol Definite backwardness, neuroses or psychoses, and a demented state were observed The last group (3 43%) did not show clear signs of intoxication, and their hospitalization was justified only by their pathological drunkenness At least 50% of the patients had a family history of alcoholism Sexual activity was reduced in 76% of the patients and 14% were impotent The prospect of restoration of the patient's virility may play an important factor in getting him to cooperate with treatment Seventy-three per cent of the patients were married with families of 3 or more children and nearly all of the patients had reactions of jealousy This assumed the form of delirious ideas in only 2 5% Sexual perversion was observed rarely

The average duration of hospitalization was 34 days for those who were admitted for the 1st time and 44 days for those with a recurrence of alcoholism Treatment consisted of 2 phases The 1st phase was that of detoxication in the proper sense and consisted of a 10-day course of administration of strychnine in doses varying from 5 to 40 mg per day, large doses of liver extracts, vitamin B in doses of from 100 to 200 mg per day, and lipotropic factors given orally Chlorpromazine was given to all patients with pronounced agitation and anxiety Penicillin was given when an infection was suspected Patients in poor general condition were given combined vitamins A, B_2, B_6, B_{12}, C and D Fever, confusion and agitation occasionally necessitated rest in bed The 2nd phase of treatment consisted of the administration of disulfiram On discharge, an average maintenance dose of 250 mg f disulfiram was prescribed for 6 months and one of 25 mg for the following year Complete and permaent abstinence is imperative The period of treatment n the hospital is short as compared with the entire duration of treatment Prolonged treatment in the hospital does not seem useful except for dangerous patients, atients in an extremely poor general condition, and ose with recurrences of alcoholism The alcoholics hould not be treated in a psychiatric ward but rather n an annex or in a specialized center

eurological Manifestations of Acute Porphyria The olyneuritic Form with a Cyclic Course Clinical and rognostic Remarks Concerning 7 Cases M Bonuelle, P Bouygues and H Puech Presse med 65 199-02 (Feb 2) 1957 (In French) [Paris]

The authors report on 7 patients between the ages f 25 and 48 years with acute porphyria, which was onfirmed in all by the presence of large amounts of orphyrins in the urine and, particularly, by a strongly ositive reaction to the porphobilinogen test One of he 7 patients did not have any neuritic symptoms nd was included only because his digestive disurbance was associated with insomnia, which was lso a constant symptom in the other 6 patients with he polyneuritic form of the disease The cyclic type f its clinical course consisted of a preparalytic stage, he onset of which was characterized by digestive disurbances with constipation in all 6 patients and vomiting in 5 Diarrhea preceded constipation for 3 days n 1 patient Simultaneously with these digestive ymptoms or several hours or days later, psychic disurbances and insomnia occurred and were associated with a rise in temperature to 38 C (100 4 F), oliguria, moderate arterial hypertension, and tachycardia in ll the patients and amenorrhea in the women

Paralysis appeared within the 30th to the 40th day, nd it progressed within a period of 5 to 10 days to omplete quadriplegia in 2 patients, while it was imited to certain muscle groups in the other 4 patients, with a predominance in the muscles of the houlder girdle, the triceps, and the extensors of the and The cranial nerves were involved in several patients, with bilateral facial paresis in 2, diplopia in 1, isturbances of deglutition in 3, and disturbances of honation in 3 There is the risk of respiratory disurbances that occurred in 2 of the 6 patients The espiratory disturbance lasted for from 15 to 30 minutes, occurred repeatedly, but remained purely subjective in 1 of the 2 patients The respiratory disturbance was severe in the other patient, and artificial espiration combined with tracheostomy was required o save the patient's life

After the paralysis had reached its maximum, there was a period of about 2 weeks of latent regression Then slow but definite regression began, which lasted or 5 to 14 months, and complete motor recuperation occurred in all the patients One of the 6 patients had a 1st attack of quadriplegia 2 years before that reported on, and the other 5 patients all had their 1st attack of the polyneuritic form of porphyria An early recurrence including digestive and psychic disturbances, fever, oliguria, and a short partial aggravation of the paretic symptoms occurred in 2 patients, a late recurrence of quadriplegia after 4 years in 1, a recurrence of purely psychiatric type in 1, and a recurrence of the digestive disorders in 2 In addition to these early and late genuine recurrences, successive bouts of digestive and psychic disturbances occurred occasionally during the paralytic stage of the disease, thus masking the cyclic course of the disease The survival of all 7 patients suggests that the notion of a definitely poor prognosis that had previously been maintained by other workers should be reconsidered

GYNECOLOGY & OBSTETRICS

Pregnancy in Diabetic Women An Analysis of a Series C Boughton and E Perkins J Obst & Gynæc Brit Emp 64 105-112 (Feb) 1957 [London]

Commenting on the incidence of diabetes in pregnant women, the authors state that, among 7,680 deliveries at St Thomas's Hospital in London, there were 30 in diabetic women, an incidence of 1 in 256 The authors examined a series of women in whom the diabetes had been treated by the free diet" method to determine if this had any apparent effect on the maternal or fetal mortality or on the incidence of toxemia in pregnancy This series comprises 51 pregnancies reaching viable stage in 29 women with diabetes Each patient was supervised at the antenatal clinic as soon as pregnancy was diagnosed, usually before the 12th week, after which the women attended both the diabetic and antenatal clinics All women required insulin throughout pregnancy or in the 2nd or 3rd trimesters, and it was given either as soluble insulin or as one of the long-acting preparations In all patients treatment was changed to soluble insulin at the time of delivery or in the event of any operation involving the administration of a general anesthetic The composition of diet was largely left to appetite, and, except in obese patients, no restriction was placed on the caloric intake or on the form in which carbohydrate foods were taken

The spontaneous abortion rate in this series was about 22%, which is approximately double the usually expected figure for nondiabetic women Preeclamptic toxemia was observed in 21 of the 51 instances, and hypertension alone was observed in 1 Pregnancy had to be terminated in 2 women Hydramnios occurred in 17 of the 51 pregnancies, and it was associated with toxemia in 7 Of the 3 congenital abnormalities only 1 was associated with hydramnios Insulin requirements rose during the 2nd and 3rd trimesters in 82 5% of the patients, remained unchanged in 12 5%, and fell in 5% Mild ketonuria was not uncommon in the later stages of pregnancy Fetal deaths occurred in 15 of 51 viable pregnancies (those of over 28 weeks' duration), 7 of these were intrauterine deaths, 3 were stillbirths, 3 were neonatal deaths, and 2 occurred during hysterotomy Intrauterine death occurred between the 28th and 36th weeks in 6 of the 7, and it was almost invariably associated with toxemia As the toxemia factor was associated with more than 50% of the total number of fetal deaths, any measure that reduces the incidence of toxemia should reduce the fetal loss The fetal mortality in this series seemed to bear no relationship to the severity or duration of the mother s diabetes All the multiparous women who lost babies had unfortunate obstetric histories, whereas, in the 23 successful pregnancies in multiparas, only 7 had had a previous pregnancy resulting in stillbirth or intrauterine death The authors believe that the dietetic method of treatment using the restriction of salt and caloric intakes should be investigated

10,000 Minor Gynecologic Operations on an Outpatient Basis J Vermeeren, R R Chamberlain and R W Te Linde *Obst & Gynec* 9 139-142 (Feb) 1957 [New York]

Minor gynecologic procedures requiring general anesthesia, such as dilatation and curettage, were done as an outpatient service in 10,000 women in the course of more than 15 years This service is feasible wherever operating suites are equipped with recovery rooms In the year 1953, chosen for random sampling, 1,150 gynecologic patients were anesthetized and allowed to go home on the same day This represents 70% of the minor surgical procedures performed in the gynecologic department in that year Of the 1,150 patients, 908 are reported on in detail Indications for operation consisted of menorrhagia and/or metrorrhagia in 454, infertility in 215, postmenopausal bleeding in 56, incomplete abortion in 20, and miscellaneous in 163 Thiopental sodium supplemented with nitrous oxide and oxygen was the anesthetic used in more than 98% of the patients The average time of anesthesia was 20 minutes Curettages were performed on 803 patients, and a cervical biopsy was included in the curettage in most of them Cauterization of the cervix was also carried out in 119 patients Malignancies were detected in 18 of the 908 patients

There were 16 unplanned immediate admissions to the hospital after the operative procedure, 6 for perforated uterus at the time of the curettage, 1 for severe uterine bleeding, 5 for possible ectopic pregnancy, 1 for possible ovarian tumor, and 3 because the patients took the anesthesia poorly There were 8 unplanned delayed admissions to the hospital from 1 to 42 days after the operative procedure, 2 of these were for bleeding from cervical biopsy sites, 1 because of a pathological report of decidua without chorionic villi in curettings, 1 for ruptured ectopic pregnancy, 2 for continued uterine bleeding after curettage, 1 for abdominal pain, and 1 for an adnexal mass detected on follow-up examination Of the 908 patients, 25 had made previous arrangements to stay in the hospital after their minor operation for 24-hour observation or for further studies Thus, 883 patients attempted to undergo minor gynecologic operations on an outpatient basis and 859 went home without complication within a few hours after the operation This form of service is recommended to other hospitals to conserve hospital beds, nursing service, and the patient's time and money

An Estrogen with Prolonged Action Estradiolcyclopentylpropionate (ECPP) Clinical Observations M Mayer and X Camenen *Semaine hôp Paris* 33 327-332 (Jan 26) 1957 (In French) [Paris]

Experiments on young and castrated rats demonstrated that 17-β-cyclopentylpropionate of estradiol (ECPP), a new estrogen, is superior to the benzoate of estradiol in that it has a more prolonged action The authors were able to observe the clinical effects of this new drug in 53 women The patients included women who had been subjected to total or subtotal hysterectomies with removal of both ovaries, women with disturbances caused by the natural menopause, women with amenorrhea or hypomenorrhea, and women with frigidity The substance has a decided estrogenic effect, its action is prolonged, and it has no undesirable secondary effects The estrogenic effect is most pronounced between the 5th and 10th days after the intramuscular injection It is advisable to inject small initial doses, 5 mg proved more effective at the onset than 25 mg Late estrogenic activity persisted 15 days with 5 mg and 2 months with 25 mg Small repeated doses had a late action that was more and more prolonged

The drug proved highly effective in disorders caused by castration and by the menopause While it increased the menstrual flow, it did not cause menorrhagia, probably because of its gradual, slow, and prolonged action It proved effective in some cases of eczema with menstrual exacerbation, in vulval pruritus, and in migraine of the menstrual type While it increased appetite and, therefore, body weight, it did not cause significant water retention The authors recommend the following dosages for frigidity 5 mg once or twice a month, preferably on the 8th day of the cycle in amenorrhea or hypomenorrhea 5 mg every 10 days, and in severe disturbances due to ovarian deficiency an injection of 20 mg about once in 2 months

Clinical Significance of Weight Trends During Pregnancy A M Thomson and W Z Billewicz *Brit M J* 1 243-247 (Feb 2) 1957 [London]

Women who were pregnant for the first time and who were not subjected to weight regulation were weighed at the first antenatal visit, usually in the 13th week of pregnancy, and, again, as a rule, from 4 to 6 weeks later Most of them were then weighed monthly until from the 28th to 30th weeks of pregnancy and more often during the final weeks Women with multiple pregnancies were excluded from the study For each woman, weights in the 13th, 20th, 30th, and 36th weeks were determined by interpolation if necessary, and the average weekly rates of gain in the 3 intervening periods calculated These average weekly rates of gain in 4,214 pregnant women were the data used The number of women in each period differed, because some women had not reported early enough, were delivered too early, or were weighed too irregularly for inclusion in all 3 periods The pregnant women were divided in 3 clinical groups 6 5% had preeclampsia with albuminuria, 25 4% had hypertensive complications, mostly mild preeclampsia without albuminuria, and 68 1% had normal blood pressure

The average rate of gain was higher in women with preeclampsia than in those with normal pregnancy, and the incidence of preeclampsia rose as the rate of weight gain increased These facts are of little value for predicting preeclampsia in the individual woman The incidence of prematurity was highest when weight gains were consistently low, dropped as the rate of weight gain increased, and then rose again with high rates of gain Preeclampsia was an important cause of prematurity in the high weight-gain groups but not in those with low weight gain The most favorable outcome of pregnancy—in terms of preeclampsia, prematurity, and perinatal death—was associated with a moderate rate of weight gain, at least throughout the 2nd half of pregnancy A gain of about 1 lb (454 Gm) a week is suggested as a sound and realistic average to aim at The more rigorous restriction of weight gain that has been advocated is not justified on present evidence and may be harmful

PEDIATRICS

Cardiac Murmurs in School Children D Stuckey, B Dowd and H Walsh M J Australia 1 36-38 (Jan 12) 1957 [Sydney, Australia]

During the survey reported, the school medical officers referred for further investigation every child considered to have a cardiac murmur at routine medical examination The total number of children examined was 34,863 The two sexes were almost equally represented in this sample, and the ages ranged from 5 to 16 years The total number of children reported to have a cardiac murmur was 467 (1 34%), and, of these, 364 were further investigated at one of the special centers If the relative incidence of the various forms of heart disease in the remaining 103 children may be assumed to be the same as in the 364, the incidence figures for the 34,863 children included in the survey were as follows rheumatic heart disease 1 4 per 1,000, congenital heart disease 2 8 per 1,000, and functional systolic murmurs 9 0 per 1,000 Of every 10 children found to have cardiac murmurs, 1 had rheumatic heart disease, 2 had congenital heart defects, and the remaining 7 presumably had normal hearts The incidence of all forms of organic heart disease in school children in this survey (4 2 per 1,000) is much the same as previous figures reported in Australia Some figures for similar types of school surveys are 5 0 per 1,000 in New York, 3 6 per 1,000 in San Francisco, 5 3 per 1,000 in Cincinnati, 4 4 per 1,000 in San Francisco in another study, and 3 6 per 1,000 in Toronto It must be remembered that these figures do not indicate the total incidence of organic heart disease in childhood, for no account is taken of children being treated in hospitals or at home who are unable to attend school

The Relative Values of Streptomycin and Isoniazid in the Treatment of Tuberculous Meningitis in Children B Ratner, G R Klimkievicz, W C Ellis and others Sea View Hosp Bull 16 103-115 (Jan) 1957 [New York]

In a recent review reporting on 420 children with tuberculous meningitis who were treated with streptomycin, the recovery rate was 15% in 1947, 30% in 1948, and 46% in 1949 The rate rose to 50% in 1950 when aminosalicylic acid (PAS) was given additionally Treatment with isoniazid in addition to streptomycin raised the recovery rate to 71% in 1952 The use of streptomycin had often led to sequelae, such as deafness, blindness, and hydrocephalus The authors' investigations started at the end of 1951 Twenty-one patients, between the ages of 8 months and 12½ years, with tuberculous meningitis were treated with isoniazid Two infants were given isoniazid alone from the inception of their ailments The spinal fluid returned to normal within 4 months One child was kept on isoniazid therapy for 13 months and observed for 2 years and 7 months after the treatment had been discontinued The other was treated for 6½ months and observed for 3 years and 7 months without therapy Eleven children, whose conditions were poor while they were on streptomycin and/or PAS therapy, were given isoniazid alone for an average period of 18 months The spinal fluid became normal within 7 months All these patients made a complete recovery Five patients developed severe residua after treatment with streptomycin They were placed on therapy with isoniazid alone, but the drug did not correct the damage done by the streptomycin therapy Isoniazid failed to prevent death in 3 patients previously treated with streptomycin Hydrocephalus and advanced meningitis were the causes of death in 2 patients The 3rd, who apparently was recovering from meningitis, broke a leg at this time His spinal fluid was positive for Mycobacterium tuberculosis and he subsequently died The recovery rate of this series of patients is 86% Isoniazid given alone for the treatment of tuberculous meningitis appears to be superior to streptomycin alone or in combination with other drugs Isoniazid is not responsible for neurological residua resulting from the use of streptomycin

Problems in the Management of Bladder Neck Obstruction in Children E Burns and P Shashy Ohio M J 53 170-175 (Feb) 1957 [Columbus, Ohio]

A review of the findings in 110 private patients with nonneurogenic obstruction treated surgically indicates that most of the problems encountered result from delayed recognition This delay is apparently due to failure to consider the possibility of an obstructive lesion in children who have abnormalities in the voiding pattern In the cases reviewed the following symptoms were recorded urgency and frequency of urination, straining to urinate, enuresis, fever of unexplained origin, recurrent or persistent pyuria, overflow incontinence, acute urinary retention, and hematuria Any of these symptoms are an indication for a study of the urinary tract Frequency and straining are early symptoms, and, if the obstruction is severe, they should be observed during the 1st year of life, not infrequently during the first 6 months Wetting the diaper at abnormally frequent intervals may be noted, and straining to urinate is often indicated by a purplish discoloration of the face during the voiding act Enuresis is not always merely a functional disorder Slightly more than 28% of children with enuresis examined by the authors had some type of obstructive lesion of the lower part of the urinary tract Medical treatment and psychotherapy are frequently carried out for too long a time

Three types of obstructive lesions at the neck of the bladder are encountered in children The commonest type is contracture of the internal sphincter Congenital prostatic valves were formerly thought to be common but are now considered almost as rare as congenital hypertrophy of the verumontanum as a cause of obstruction of the bladder neck in children Ureterocele and stenosis of the external urethral meatus are other possible obstructive lesions of the bladder neck in children The condition is not difficult to diagnose Chemical and bacteriological examinations of the urine, renal function tests, cystourethroscopic examination, and roentgenographic examinations, including excretory urograms, retrograde cystograms, and retrograde pyeloureterograms are made as indicated in the individual case Treatment consists in surgical removal of the primary lesion by either transurethral resection or suprapubic transvesical excision Associated lesions or secondary complications should also be corrected surgically when necessary

THERAPEUTICS

Therapy of Diabetes Clinical Experiences with Hypoglycemia Inducing Sulfonamides W Brednow and D Jorke *Munchen med Wchnschr* 99 101-105 (Jan 25) 1957 (In German) [Munich, Germany]

Brednow and Jorke present their observations on 50 diabetic patients with 2 new brands of carbutamide, Invenol and Oranil Patients with a mild form of diabetes, who respond to dietetic restriction of carbohydrates, should not be treated with sulfonamides Although the orally effective antidiabetic sulfonamides reduce the blood sugar after a few hours, 6 or 7 days may be required for their complete elimination Because the effect of insulin is more easily controlled, the authors prefer insulin to the sulfonamides in diabetic patients who are to be operated on Furthermore, since the prolonged effect of the sulfonamides depends at least partly on the increased tubular reabsorption, patients with diabetic nephropathy should be excluded from sulfonamide therapy Patients with precoma and coma also are more responsive to treatment with regular insulin With these facts in mind, the authors excluded 15 of their 50 diabetic patients from treatment with sulfonamides because 7 of them responded to dietetic treatment and in 8 others a change from insulin to sulfonamide treatment seemed inadvisable

Of the remaining 35 patients, 21 responded well to the exclusive use of Invenol or Oranil, in 3 others these drugs had to be combined with insulin, and in the remaining 11 patients they failed The authors found that a gradual changeover from insulin to oral sulfonamide therapy is possible even after diabetes has existed for many years, but, on the other hand an abrupt changeover from insulin to sulfonamide medication may lead to serious disturbances in carbohydrate metabolism The hypoglycemia-inducing sulfonamides seem particularly valuable in elderly diabetics, in whom the diabetic disturbance is more of the countergegulatory type rather than due to pancreatic factors Nineteen of the 21 patients who responded favorably to the sulfonamides were over 50 years of age It was noted also that intercurrent and chronic infections may block the antidiabetic effect of the sulfonamides The question of the combined use of insulin and the carbutamides may prove difficult, but the authors found that 1 young person with a highly unstable diabetes who failed to respond to insulin or a carbutamide alone did respond to a combination of the 2 Few complications resulted from the use of Invenol and Oranil, and the authors conclude that oral therapy with sulfonamides is possible in a large percentage of diabetics and that it has advantages over injection therapy

Therapeutic Attempts in Secondary Cancer of the Lung A Meyer, O Monod, M Brunel and others *Presse méd* 65 128-131 (Jan 23) 1957 (In French) [Paris]

Various treatments for secondary cancer of the lung are available Radiotherapy still has a transitory and palliative action on secondary pulmonary cancers, although its action may be beneficial and prolonged in many cases Good results are also obtained by treatment with radioactive sodium iodide (I^{131}) The authors report on a 58-year-old man with metastatic pulmonary cancer of prostatic origin He had been given diethylstilbestrol since 1951 Two months after hormonal treatment was started, the radiologic shadows in the lung disappeared The patient has continued to take diethylstilbestrol but in reduced doses His general condition and that of his lungs were perfect at the time of his last checkup Chemotherapy was of no benefit in patients with secondary cancer of the lung Surgical removal was performed on 10 patients with metastatic cancer of the lung of various origins Three of them died a few months after operation, 3 could not be traced, and 1 patient was only recently operated on, so that no conclusion regarding treatment could be drawn Two patients were in excellent condition 2½ years after their operation Primary cancer should be removed if possible, but metastatic pulmonary cancer should also be removed even if its origin is unknown This cancer usually is localized so that lobectomy or even more limited excision should be performed The difference between embolism of cancerous cells in the pulmonary capillaries and the true metastatic tumor, which practically has the characteristics of an isolated tumor, is emphasized

Benzathine Penicillin G in the Treatment of Syphilis

C A Smith, M Kamp, S Olansky and E V Price Bull World Health Organ 15 1087-1096 (No 6) 1956 (In English) [Geneva]

Smith and associates found that observations over a period of 2 years confirmed preliminary data indicating that a single injection of 2,500,000 units of benzathine penicillin G maintains in most patients a detectable blood level for periods up to 4 weeks They found this preparation highly effective in the treatment of primary and secondary syphilis In these forms of syphilis it produces results equal or superior to those obtained with schedules providing 4,800,000 units of procaine penicillin G in oil with 2% aluminum monostearate (PAM) The authors also present in this report their experience with benzathine penicillin G in the treatment of asymptomatic neurosyphilis Preliminary data suggest that a single injection of 2,400,000 or 2,500,000 units of benzathine penicillin G may be inadequate for the treatment of asymptomatic neurosyphilis and that it may be necessary to increase the dose The long-sustained blood levels after the administration of benzathine penicillin G do not seem to produce delayed reactions, whereas repeated injections of PAM increase the risk of untoward reactions to treatment

PATHOLOGY

Viral Verrucae in the Anorectum with Consideration of the Cancer Problem

H M Young Surgery 41 292-305 (Feb) 1957 [St Louis]

Microscopic examination of tissues removed at anorectal surgery from 300 patients revealed warts in the anal canal, the anal crypts, or on the rectal mucous membrane Verrucae, or warts, were observed growing from the anal crypts The growth often plugged the crypt, thus impeding drainage and enchancing secondary bacterial infection Thrombosed anal varix, anal fissure or ulcer, and perianal or renal abscess with fistula formation were noted in many crypts Verrucae were detected on the tips and in the substance of hypertrophic anal papillae of patients with chronic anal cryptitis associated with papillitis Verrucae were found in the bed of anal fissures and in the underpocketed bases of distal sentinel tags Warts were identified in the involved crypts, which served as the primary orifices or points of origin of fistulas The verrucae were found in the substance of the cord-like tracts and were seen bulging from or plugging the secondary orifices of the fistulas

More than 200 of the 300 patients from whom the specimens were obtained had shorter than normal anal canals This may be a congenital variation that predisposes the patient to trauma, ectropion, and infection with bacterial, mycotic, and viral agents of the anorectum Verrucae in the anorectum may stimulate an antiviral or other immunological reaction There was no concomitant carcinoma in any of the 300 patients in whom warts were detected, although 28 had benign adenoma Conversely, there were no verrucae of the anorectum found in another series of 300 patients with carcinoma of the colon and anorectum The presence of warts in the anorectum and the absence of carcinoma in the intestine suggests the existence of a delicate immunological balance Should an interrelationship be definitely established, then a cancer detection test can be envisioned on this basis

Recognition and adequate treatment with podophyllin in acetone but not mineral oil and/or fulguration of warts and possible autogenous or smallpox vaccine are suggested Adequate treatment by preoperative management and by fulguration of verrucae at the time of surgery often enhances postoperative recovery in all types of anorectal surgery Postoperatively, unrecognized or superimposed verrucous infections cause indolent scar formation Heretofore, wounds considered to be an overgrowth of granulation tissue are now often known to be complicated by a viral wart formation The unstable herringbone pattern of the scar tissue on microscopic study furnishes evidence of an unrecognized or untreated verrucal involvement

The B C G Lesion in Sarcoidosis

P Forgacs, C K McDonald, M O Skelton Lancet 1 188-190 (Jan 26) 1957 [London]

It is widely believed that most cases of sarcoidosis represent a peculiar form of reaction to the tubercle bacillus The studies reported were undertaken to test this hypothesis by observing whether attenuated tubercle bacilli of the BCG strain survive when they are inoculated into the skin of patients with sarcoidosis This experiment also provided an opportunity to reexamine Lemming's claim that the histological pattern at the site of such an injection is peculiar to the disease and may lend support to the diagnosis Ten patients with sarcoidosis who volunteered for this investigation were given an intracutaneous injection of 0 1 ml of a BCG vaccine containing 0 5 mg of bacilli per milliliter The rate of development of the local reaction was recorded Six weeks later the skin at the site of vaccination was excised and subjected to bacteriological and histological examination The 8 women and 2 men had 2 or more of the clinical and radiologic manifestations of sarcoidosis In 5 uveitis was the presenting complaint, it was always associated with symmetrical enlargement of the hilar lymph nodes, reticulation of the lungs, or both The prevalence of uveitis and intrathoracic manifestations among the 10 patients studied is to be attributed to the fact that most of the patients were under the joint care of an eye hospital and a chest clinic

Seven patients had a delayed response to the intracutaneous reaction of the BCG suspension and 2 patients had an immediate reaction, while in 1 patient the rate of the development of the reaction was not recorded Bacteriological investigations demonstrated that attenuated tubercle bacilli survive in the skin of patients affected by sarcoidosis The bacilli are apparently unaffected by the passage, since their form, staining properties, rate of growth, and appearance in culture, as well as their power to induce tuberculin conversion in the guinea pig, were identical with those of the BCG strain obtained from other sources It is difficult to assess how far an experiment of this type approaches the conditions under which tubercle bacilli are supposed to initiate the cutaneous manifestations of sarcoidosis The number of bacilli injected was presumably far in excess of the number that might lodge in the skin by dissemination under natural conditions On the other hand, the bacterial population is known to decrease sharply soon after vaccination The histological appearance of the BCG lesion in sarcoidosis is not distinctive enough to be used as a diagnostic test The pattern is that of a chronic inflammation with histiocytes and lymphocytes predominating No tissue specimen showed the characteristic cell arrangement of the sarcoid follicle

ANESTHESIA

The Anæsthetic Management of a Severely Burnt Child A S M Lamont and V A Grimshaw Brit J Anæsth 29 25-27 (Jan) 1957 [Altrincham, England]

A 5-year-old child was hospitalized within 30 minutes after sustaining severe burns She was in shock, and so an intravenous drip was started at once, 7 5 mg of morphine being added to the drip for sedation Penicillin therapy was started It was found that more than 50% of the body surface had been destroyed The child was catheterized in order to control the output and intake of fluid It is suggested that over a period of 48 hours 100 cc of fluid is required for every 1% of body surface burned Thus the child required in the first 24 hours 2,400 ml plus 1,200 ml (insensible sweat loss) This was given in the ratio of 2 parts whole blood, 1 part plasma, and 1 part isotonic sodium chloride solution, the whole blood being given to replace corpuscles damaged in the full thickness burns Not until 7 days after admission did the child's general condition warrant toilet of the burns under general anesthesia Premedication consisted of 25 mg of chlorpromazine and 90 mg of pentobarbital, atropine being omitted on account of severe tachycardia Induction was commenced with cyclopropane and oxygen and when the child was asleep a vein was sought, and 20 mg of suxamethonium was injected Anesthesia was maintained, using circle absorption, with cyclopropane and oxygen Three weeks later, using the same routine, toilet and debridement of the burns, followed by application of homografts, were carried out Subsequently the patient's burns were dressed weekly under light cyclopropane anesthesia After the application of donor grafts from the mother, the patient was anesthetized about twice a week In the course of 6 months she was anesthetized 34 times for dressing and skin grafting

Small children generally dread anesthetics, and it often proves difficult for the anesthetist to retain the child's confidence if dozens of anesthetic procedures are required The author agrees with Shannon that it is impossible to dogmatize about the best anesthetic in a severely burned child A high concentration of oxygen is necessary to satisfy the metabolic demands of the child Rapid recovery is essential to allow resumption of a full dietetic regimen Cyclopropane is well suited for use in severely burned children, because it can be given with high concentrations of oxygen Control of the depth of anesthesia is easier by inhalation method, as venepuncture may not be feasible Cyclopropane is excreted unchanged from the body, and recovery is rapid

Chlorpromazine as an Adjuvant in the Relief of Chronic Pain J W Dundee Brit J Anæsth 29 28-34 (Jan) 1957 [Altrincham, England]

This report deals with the use of chlorpromazine as an adjuvant in the relief of pain and analyzes in detail the results obtained in 76 patients treated over a period of 30 months Very good results were obtained in subjects with malignant disease but poorer results in those with other types of pain These findings were similar to those obtained in 48 similar patients in whom the effects of chlorpromazine treatment were assessed by other practitioners Best results were obtained with a combination of chlorpromazine and levorphan Side effects occurred in 67% of the patients but necessitated stopping the chlorpromazine in only 2 The occurrence of an influenza-like attack, followed by jaundice was the most serious complication encountered in this study It is suggested that serum bilirubin and alkaline phosphatase determinations and leukocyte counts be made at frequent intervals in patients who receive prolonged treatment with chlorpromazine The dangers associated with the use of chlorpromazine do not appear to be sufficiently great to preclude its use in patients suffering pain due to malignant disease In other conditions one must assess whether the benefits likely to be obtained from the use of chlorpromazine are such as to outweigh the side effects associated with its use

Noradrenaline in Shock Due to Visceral Perforation D D Davies Brit M J 1 261-265 (Feb 2) 1957 [London]

Davies reports on 3 patients, a 66-year-old woman and a 49 year-old man with rupture of the sigmoid colon and a 75-year-old man with a large pyloric ulcer that had perforated, in whom shock was associated with the visceral perforation The patients were operated on and responded only temporarily to the infusion of moderate amounts of blood and dextran The systolic blood pressure level had dropped to 80, 70, and 75 mm Hg respectively, and, in order to raise it, the patients were given norepinephrine intravenously at the conclusion of the operation The strength of the infusion used varied from 4 mg per 1,000 cc of dextrose sodium chloride solution to 32 mg per 1,000 cc The rate varied from 10 to 80 drops per minute Intravenous administration of norepinephrine quickly raised the blood pressure levels, and, by a regulation of the rates of infusion, these levels were maintained fairly constantly The 2 patients with perforation of the large intestine recovered completely The patient with perforating peptic ulcer made a good immediate recovery but died 12 days later of a pulmonary embolus

It is suggested that, in patients with shock caused y visceral perforation, traditional methods of reuscitation should be tried first, but if these methods ail the use of a continuous norepinephrine infusion hould not be delayed Norepinephrine therapy is far rom being the complete answer to the problem of hock caused by visceral perforation, but its early use n the state of shock probably produces an increase in lood flow to vital organs This and the correction of nyocardial ischemia (after the increase in coronary lood flow) may be important factors in helping to revent the development of an irreversible phase that s refractory to treatment and for which norepinephine therapy is of no avail and may do more harm han good The importance of adequate oxygenation n the patient in shock is stressed

PHYSIOLOGY

Manual Artificial Respiration in the Sitting Posture H Ruben Lancet 1 134-135 (Jan 19) 1957 [London]

If a patient stops breathing while sitting in a dentist's chair, it is necessary to move the patient from the chair to the floor to apply any of the current methods of artificial respiration This wastes valuable time A new method of manual artificial respiration has therefore been devised for treating patients with apnea in the sitting posture Both inspiration and expiration are produced by this method by the operator stationed either in front of or beside the patient The patient s body is flexed in such a way as to bring the head and trunk close to the legs The flexion is increased by pressing on the patient's back This maneuver both compresses the abdominal contents, thus forcing the diaphragm upwards, and decreases the capacity of the thorax When the operator stops pressing on the back, the thorax will expand passively and reach its resting position, in which inspiration starts Inspiration is then increased by lifting the upper part of the body, thereby decompressing the abdominal contents and allowing the diaphragm to descend Artificial expiration and inspiration are applied alternately about 12 to 15 times a minute Experimental trials on curarized patients showed that an effective exchange of air was produced by this method The patient s position during the application of the method maintains a free airway and avoids aspiration

Oral Sodium Loading in Normal Individuals K Markley, M Bocanegra, G Morales and M Chiappori J Clin Invest 36 303-308 (Feb) 1957 [New York]

Sixteen healthy Peruvians between the ages of 20 and 28 years were placed in a recumbent position and given a quantity of isotonic sodium chloride solution equivalent to 10% of body weight by constant drip, with the aid of a stomach tube over a period of 21 hours Renal hemodynamics and electrolyte excretion were studied in 12 of the 16 subjects, and plasma volumes were studied in 7 of the 12 and in the 4 subjects before and after giving the sodium load The glomerular filtration rate increased by 32% after the administration of the sodium load as compared to the control value The effective renal plasma flow did not change significantly While the body weight was increased significantly at the termination of the loading with sodium, plasma volume did not change significantly The increase in body weight largely disappeared within 3 hours after the termination of the loading with sodium

While the sodium load was being given, 58% of the administered sodium and 51% of the administered water were excreted by the kidneys The concentration and total quantity of sodium excreted in the urine increased significantly at the termination of the loading with sodium An increased filtration of sodium by the glomeruli as well as a decreased reabsorption of sodium by the tubules are considered to be responsible for this phenomenon Water excretion also was increased, and its significance was masked by the slight water diuresis in the course of the control period during which a small quantity of water was given The diurnal variations of sodium and water excretion that occur without loading with sodium were evident also in the course of the loading with sodium but at higher levels than those reported under normal circumstances Total excretion of potassium as well as potassium concentration in the urine decreased after loading with sodium There were no important changes in plasma concentrations of red blood cells, total proteins or electrolytes

Respiratory Adaptations to Chronic High Altitude Hypoxia H Chiodi J Appl Physiol 10 88-92 (Jan) 1957 [Washington, D C]

Acclimatization to chronic hypoxia of high altitudes was studied in a group of men residing continuously for many years at 3,990 m (11,870 ft) and 4,515 m (13,545 ft) above sea level and in a group of lowlanders within 8 weeks of their arrival at these altitudes Resting pulmonary ventilation increased in the newcomers from the first hours of arrival at high altitude It reached its maximum level after 2 or 3 weeks and fell to a lower level after a certain time, but it did not return to sea-level values Changes in alveolar pCO_2, alveolar ventilation and oxygen ventilatory equivalent were in accordance with those of total ventilation Hyperventilation in the newcomers was greater than in the long-term residents Pure oxygen breathing at high altitudes depressed the average pulmonary ventilation more in the newcomers than in the residents but not to sea-level values The respiratory response to inhaled CO_2 in the newcomers at 11,870 ft was greater than that found in persons at sea level The response was equal or somewhat less in the long-term residents at 11,870 and 13,545 ft than in persons at sea level The mean arterial pH values of both groups at both altitudes were within the range found as normal at sea level No change in plasma proteins with regard to the sea-level values was observed

BOOK REVIEWS

Pediatric Cardiology By Alexander S Nadas, M D , F A A P , Assistant Clinical Professor of Pediatrics, Harvard Medical School Boston Cloth $12 Pp 587, with 343 illustrations W B Saunders Company, 218 W Washington Sq , Philadelphia 5, 7 Grape St Shaftesbury Ave , London W C 2, England, 1957

A vast amount of useful information concerning all types of heart disease, acquired and congenital, encountered in infants and children has been put in this relatively small volume This is derived from personal and published sources The first part of the book outlines the methods used in diagnosis, ranging from the initial history and physical examination to the newer techniques including phonocardiography, cardiac catheterization, and angiocardiography A brief outline of the theoretical principles involved introduces each diagnostic tool The data contained should be of practical value as standards by which to evaluate observations made on children The second part deals with acquired heart disease, including acute rheumatic fever and rheumatic heart disease The inclusion of aberrant origin of the coronary artery and endocardial fibroelastosis under this heading may be readily accepted, though it is somewhat illogical The third part, occupying about half the book, deals with congenital heart disease This is perhaps the best section of the book Clinical entities are grouped into broad classifications, departing from the usual groupings

As stated in the introduction, a personal stamp has been put on the entire book The book in a sense is a distillation of the author s extensive experience and a summary of his case material Emphasis is placed at all times on the practical approach to the diagnosis and treatment of heart disease rather than on a comprehensive coverage of details Dogmatic pronouncements, which deviate from views held by other cardiologists, are encountered at times For example, the belief is expressed that early and prolonged treatment of acute rheumatic fever with large doses of hormones will prevent valvular damage This is carefully labeled as a personal belief and evidence from the literature which contradicts it is cited Similarly, there are numerous statements that an experienced cardiologist might wish to challenge This does not, however, detract from the value of the book for those not primarily cardiologists, nor for the cardiologist, who can also profit from the author s wide experience This volume is highly recommended as an excellent introduction to pediatric cardiology

Handbook of Pediatric Medical Emergencies By Adolph G DeSanctis, M D , Professor of Pediatrics and Chairman of Department of Pediatrics, Post-Graduate Medical School, New York University-Bellevue Medical Center, New York With collaboration of Charles Varga, M D , and 10 contributors Second edition Cloth $6 25 Pp 389, with 73 illustrations C V Mosby Company, 3207 Washington Blvd , St Louis 3, 1956

This new edition has additional chapters on metabolic emergencies, accident and poison prevention, genitourinary emergencies, and respiratory paralysis in poliomyelitis Since the text, including the index, of this book contains only 389 pages, it is a handy and quick reference book for the busy pediatrician There are many instructive and self-explanatory illustrations This book is concise and to the point, and it should make an excellent addition to the library of the pediatrician as well as the general practitioner

Radiology of the Heart and Great Vessels By Robert N Cooley, M D , Professor and Chairman of Department of Radiology, University of Texas, Medical Branch, Galveston, and Robert D Sloan, M D , Professor and Director of Department of Radiology, University of Mississippi Medical Center, Jackson [These *pages are reprinting of Chapter IV, from 3-volume loose leaf* edition of Golden Diagnostic Roentgenology, with same page numbers used in that text] Cloth $12 Pp 4 1-4 309, with 195 illustrations Williams & Wilkins Company, Mount Royal and Guilford Aves , Baltimore 2, 1956

Two radiologists have contributed a superb and timely volume to roentgenologic literature The material embraces the mass of knowledge that has accumulated over the last 15 years It is presented with the day-to-day practice of this specialty in mind Procedures are outlined and discussed The normal appearance of the heart and great vessels is subjected to close scrutiny Mensuration is critically reviewed Pathological conditions, both usual and unusual, are considered Congenital malformations are classified and correlated with disturbed function The role of the radiologist in diagnosis, although admittedly subject to flux, is delineated Particular attention is given to those conditions that are amenable to correction The printing is excellent Numerous illustrations are ably done and well grouped A well chosen up-to-date bibliography is included This volume is highly recommended to the radiologist as well as to those who are engaged in roentgenology of the heart and great vessels

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated

QUERIES AND MINOR NOTES

DIAGNOSIS AND TREATMENT OF PERNICIOUS ANEMIA

To the Editor —*Can vitamin B$_{12}$, when used in the treatment of pernicious anemia, be given subcutaneously, in the same dosage, and with equally good results as when given intramuscularly? Since it is rapidly excreted when given intramuscularly, would not better results be obtained with smaller doses taken more frequently? Patients could be trained to take it subcutaneously, as diabetics take insulin The statement is often made that true pernicious anemia does not exist, if there is free hydrochloric acid, and that treatment should not be started until a positive diagnosis has been made Has anyone ever made an estimate of the number of patients who have been treated for pernicious anemia, especially in rural districts, who have never been given a gastric test? Do not many physicians treat patients with typical symptoms and blood findings at once and then, if there is rapid and excellent response to treatment, give a diagnosis of pernicious anemia and continue treatment without confirming the diagnosis by gastric tests for hydrochloric acid?*

M D , Connecticut

Answer —Vitamin B$_{12}$ may be administered subcutaneously as well as intramuscularly, injections cause little irritation, and the therapeutic effects are comparable While it is true that with large doses of vitamin B$_{12}$ the excess is rapidly excreted, there is fair retention when doses of moderate size are employed Fifty micrograms injected once every four weeks constitutes a satisfactory maintenance schedule and gives fairly normal blood levels of vitamin B$_{12}$ even at the end of the four-week period No one has been able to obtain evidence that more frequent injections offer any advantage Patients may be trained to administer the vitamin B$_{12}$ themselves, but even so they should be seen at regular intervals by their physician and care should be taken to make certain that a preparation of known potency is being used If a diabetic patient fails to take his insulin, he usually finds himself in trouble within a short period The patient with pernicious anemia, on the other hand, who becomes careless about his injections may get along reasonably well for months to a year or more before he becomes anemic or develops progression of the neurological lesions of the disease A trip to a physician's office once every four weeks for observation and for the vitamin B$_{12}$ injection is the best way to provide maximum assurance of optimum therapy

Unfortunately, it is true that many physicians treat patients for pernicious anemia without establishing the presence of achlorhydria or without following the therapeutic response carefully Often, too, they will give transfusions and iron therapy at the same time One then is faced with the problem of not having established the diagnosis and of not knowing whether treatment should be continued for the lifetime of the patient If a gastric analysis is then done and free hydrochloric acid is found, one can essentially eliminate a diagnosis of pernicious anemia If achlorhydria is found, however, the problem is more difficult, and one would have to measure the absorption of orally administered, radioactive-cobalt-tagged vitamin B$_{12}$ in order to be sure

PERIODIC FEVER OF 10 YEARS' DURATION

To the Editor —*For the last 10 years a 48-year-old man has had weekly elevations of temperature up to 102 or 103 F (38 9 or 39 5 C), occasionally preceded by a rigor After about four or five hours, the temperature returns to normal, but occasionally the fever has lasted two days Except for body aching and generalized headache, there are no associated symptoms No relief is obtained from aspirin, and he usually does not stay away from work because of the fever The onset occurred when he had a "stomach ache," 11 years ago, and at that time a duodenal ulcer was diagnosed by a gastrointestinal series His weight went from 160 to 130 lb (72 6 to 59 kg), and about a year later the elevated temperatures became prominent Exhaustive tests have been conducted, including all sorts of viral studies, agglutination tests, fungus studies, bone marrow, skin, and muscle biopsies, stool examination, intravenous pyelography, study of the gallbladder, gastrointestinal series, and barium enema, all with negative results His history reveals the usual childhood diseases, he had mumps at 37, no malaria, an appendectomy at 30, and a fractured collar bone at 27 He farmed until 1938, since then he has been employed in school maintenance He has used pasteurized milk since 1939 His family history is noncontributive Physical examination is negative except for moderate tension and nervousness He was treated once for brucellosis (undulant fever), with no relief He has been given Equanil and Frenquel, Dilantin (in case the condition is some manifestation of epilepsy), and steroids, with no improvement The fever really seems to be psychogenic Please provide some help in this case*

M D , Texas

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —The first point to establish in any mysterious febrile illness is that the fever is genuine Occasionally persons with peculiar mental quirks find solace in inventing a fever, and they may go to remarkable lengths in cleverness and cunning, passing off as real a spurious fever The tricks are legion, and their detection is not simple If the episodes of fever are real, in the light of all the negative evidence this man un-

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The answers here published have been prepared by competent authorities They do not, however represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer s name and address but these will be omitted on request doubtedly has what Reimann calls periodic disease. Under this heading he has described an assortment of disorders of unknown cause that have in common regularly recurring short episodes of disease; these may occur intermittently for many years without affecting the general health. Mysteriously repeated episodes of fever, which commonly occur at intervals of about a month rather than a week, constitute one large group of the cases he has gathered. Symptomatic relief may ordinarily be obtained with salicylate compounds in some patients; steroid hormones are usually less successful. The nature of the strange, mysterious tides of this inherent rhythmicity are as obscure as the treatment is unsatisfactory. However, in spite of the distress it causes, the disorder seems to be surprisingly benign in terms of threat to general health or life.

Answer.—The circumstances portray the usual dilemma physicians face when they encounter one of the periodic diseases, in this case almost certainly periodic fever. Many victims, in addition to the necessary exhaustive studies mentioned, also have been deprived of their tonsils or teeth in a search for "focal infection" and have received a battery of antimicrobials, all to no avail. Brucellosis, epilepsy, psychoneurosis, malaria, Hodgkin's disease, tuberculosis, and other chronic ailments usually are suspected. It is surprising that so typical a case could not be diagnosed, considering the numerous reports on the subject in the literature. The cause is unknown, and there is no effective treatment. The episodes may persist for life, but in some instances the symptoms diminish and the intervals lengthen over the years. In a few persons they disappear. Most victims learn to live with their discomfort, and some obtain relief with aspirin, barbiturates, or alcohol during the episodes. Adrenal steroids have given temporary relief in some patients with periodic peritonitis, but if the patient in question actually had a duodenal ulcer 11 years ago they may cause a recurrence. An explanation of the disorder and reassurance are the best one can offer a victim at present. The subject is discussed in detail by Reimann (*Medicine* 30:219, 1951.)

AUTOCLAVING OF SPINAL ANESTHETICS

To the Editor:—*How often, if at all, can spinal anesthetic agents such as Pontocaine, procaine, 6% dextrose solution, and epinephrine be autoclaved?*

Fred B. Ely, M.D., Orland, Calif.

Answer.—Pontocaine and procaine, in a study carried out by Carter and associates (*Anesthesiology* 15:480, 1954), were autoclaved at 250 F five consecutive times and then were subjected to chemical tests by the manufacturer and were also used for anesthesia. There was no detectable loss of potency by either method of assay, and there was no increase in the percentage of complications following the use of these agents. Solutions containing dextrose should not be reautoclaved, as this may result in caramelization, which may give rise to irritating breakdown products. Repeated autoclaving of epinephrine may lead to partial destruction of this agent, with loss of potency, so that it should probably not be subjected to more than one autoclaving. Ampuls can be autoclaved with little waste by placing the two or three ampuls required for the induction of each type of spinal anesthesia in a large test tube for autoclaving. It is thus possible to select exactly the combination of drugs needed for the induction of each type of anesthesia so that it is not necessary to discard or reautoclave unused ampuls.

SATURATED FATS IN COTTAGE CHEESE AND CREAM

To the Editor:—*Please enlarge upon the subject of the percentage of saturated fats contained in cottage cheese and cream mentioned in Queries and Minor Notes under Arteriosclerosis and Diet in* The Journal *for Nov. 17, 1956, page 1200.*

Augustin Jones, M.D., St. Louis.

Answer.—Uncreamed cottage cheese contains only 0.5% total fat, and the amount of saturated fats present in creamed cottage cheese depends entirely upon the amount of cream added to the cheese. The saturated fats in light cream (20% butterfat) amount to about 11%, so if one were to use cottage cheese containing light cream in the amount of 10%, the amount of saturated fats in the cheese would be slightly over 1%. The reply to the query mentioned refers to a specific dietary problem, and the answer should not be applied to the diet in general; there should be no implication that the ingestion of saturated fats in cottage cheese or any other wholesome food is undesirable.

DECREASED INSULIN REQUIREMENT

To the Editor:—*For a period of about 20 years a 73-year-old man administered 20-30 units of insulin to himself daily for diabetes mellitus. Without insulin he showed (4+) urine sugar. Nine months ago, after a stroke that resulted in a hemiplegia, it was found that he no longer needed insulin, as evidenced by absence of sugar in the urine and normal blood sugar concentration. To what process can the sudden disappearance of the diabetes mellitus be attributed?*

M.D., North Carolina.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Many patients as they grow older require less insulin, particularly if the diabetes is mild, as in this case, as evidenced by the 20 years' duration of the disease and the moderate amount of insulin necessary to control it. In the present case, it would seem likely that after the "stroke" the diet was so carefully selected and was so restricted that the patient's urine became sugar free and the blood sugar level normal. It is a quite common experience for even younger patients taking more units of insulin to have their urine become sugar free when they are admitted to a hospital and placed under close supervision.

Answer.—Without much doubt the patient is still diabetic, as a glucose-tolerance test would show, even though he seems to have lost the symptoms of diabetes. There is nothing about hemiplegia or the cerebral damage producing it that would be expected to ameliorate the diabetic state. It is probably a safe assumption that the improvement noted is due to a considerably diminished food intake This course of events is not unusual in older patients whose appetites fail after a severe illness

LEAD AND ANTIMONY TOXICITY

To the Editor —*Is there any information regarding lead or antimony poisoning in printers or linotype operators having cutaneous contact with lead type? No history of oral contact with type was established If so, what symptoms or tests could be performed to determine antimony poisoning?*

M D, North Dakota

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —Lead poisoning, as well as antimony poisoning, does not occur as a consequence of absorption of the metal or its inorganic compounds, including the oxides, through the skin Some absorption may occur as the result of putting the fingers, or food or other articles so handled, in the mouth, but this, except through the most flagrant violation of ordinary measures of cleanliness, is insufficient to cause poisoning Poisoning usually occurs, if at all, and very rarely, among printers when fumes from the molten alloy and dust from oxidized, spilled metal are dispersed into the atmosphere in the immediate vicinity of the printer in dangerous concentrations (above 0 15 or 0 20 mg per cubic meter) throughout the greater part of the hours of work

The detection of an abnormal or potentially dangerous degree of absorption of either lead or antimony can best be established by precise quantitative determination of the rate of the urinary excretion or the concentration of the metal in the whole blood The diagnosis of intoxication, when a potentially dangerous level of absorption has been demonstrated by analysis (or otherwise), must always depend upon the differential diagnosis of presenting symptoms and physical signs This consultant has never seen a case of antimony poisoning in a printer

Answer —Insofar as this query is predicated upon percutaneous absorption of lead or antimony, it may be denied that any such portal of entry exists in the trades mentioned Theoretically, no vapors of lead or antimony arise in connection with linotype operation because of the relatively low temperatures involved Practically, some lead and antimony oxide are produced, so that poisoning becomes a possibility, although a rarity Since the lead dominates the mixture, the initial diagnostic effort should center about that element As a preliminary step, the urine should be examined for porphyrins by the technique described by McCord (*Indust Med* 20 185, 1951) A positive test is not conclusive as to lead poisoning, but, if the test is positive, it might be followed by appropriate blood or urine quantitative examination For the blood, any quantity above 0 08 mg per 100 cc should be regarded as abnormal For the urine, any quantity in excess of 0 08 mg per liter should be regarded as significant While antimony poisoning is a possibility, it is so infrequent that chief activities should center about the possibilities of lead poisoning

HUMIDITY AND TUBERCULOSIS WARDS

To the Editor —*The following problem has arisen in the tuberculosis division of a large state mental hospital The basement of one of the buildings has been used for patients with quiescent and arrested cases of pulmonary tuberculosis until the disease becomes inactive, at which time such patients are transferred either to the general service in this hospital or back to the original state hospital from which they were transferred for treatment of their pulmonary condition Although considerable money has been spent on heating and ventilation in the basement of this building, it still seems too damp at certain periods of the year, especially during the summer months What are accepted satisfactory humidity readings and conditions for patients of this type?*

Paul C Burnett, M D, Logansport, Ind

Answer —The terms "quiescent" and "arrested' are no longer current in the classification of status of cases of tuberculosis If a presumably inactive case is meant, with the patient being held for a period of time to make sure of the status, it seems that the ward conditions could be the same as those in the general wards of a state mental hospital, with the addition, however, that the patient should be in quarters isolated from nontuberculous patients Unless humidity per se is excessive, it is not an important factor for tuberculous patients, and of course the wards should be kept warm

EFFECT OF CORTISONE ON THE BREAST

To the Editor —*Is there any report of disturbance in the breast occurring after the use of cortisone? A patient has congestion and pain in both breasts that developed after cortisone medication The patient is 54 years old and has not menstruated for four years She has never had any complaints regarding the breast before She states that, at the same time the breasts were sore, she had a white vaginal discharge No abnormality in the breasts could be found except for tenderness, and there was no secretion*

Rebecca McConnell, M D, Pittsburgh

This inquiry has been referred to three consultants, whose respective replies follow —Ed

Answer —According to the best knowledge available, disturbance of the breast is not one of the long list of side-effects known to have occurred during the use of cortisone However, amenorrhea has been described after use of anti-inflammatory agents, including hydrocortisone

Answer —Cortisone therapy suppresses adrenal function and reflexly suppresses pituitary function However, all hormones are suppressed about equally, and therefore there should be no disturbance in pituitary stimulation of the ovary to account for symptoms as described If cortisone therapy is to be blamed for the symptoms, it seems more likely that sodium retention would be the cause

ANSWER —The exact role of the adrenal cortex in breast development and function is a moot question The results of experimental work have been somewhat contradictory More recent evidence points to the fact that corticotropin (ACTH), cortisone, and hydrocortisone have an effect on breast development and on the pituitary prolactin content Cortisone has been found to produce branching of the ducts, lobule-alveolar development, and secretory activity in the mammary glands of mature female rats It also caused an increase in the pituitary prolactin content It appears to be necessary to have estrogen affecting the breasts as a preliminary to cortisone stimulation In the case reported, it is quite likely that the estrogen was from the adrenal gland since the patient had not menstruated for four years Although this is not a common experience, it is quite likely that cortisone can bring about so-called congestion of the breasts in a postmenopausal woman The pituitary-adrenal-ovarian axis may be involved in such a way as to increase the prolactin content of the pituitary sufficiently to bring about a certain amount of increase in vaginal secretion The dose and frequency of administration of the cortisone, which was not stated would be a factor

CHRONIC OSTEOMYELITIS WITH DRAINAGE

TO THE EDITOR —*A patient who has had osteomyelitis of the left tibia for 35 years now has some sinus drainage However, he is sensitive to penicillin, and the question comes up as to treatment of this type of condition with antibiotics Would it be desirable to culture the fluid from the sinus, do sensitivity tests for antibiotics, and start treatment with them, or have studies found this approach to be unsuccessful? Occasionally the patient gets a slight elevation of temperature that might possibly be due to the osteomyelitis, but this is of low grade and has not prevented him from working*

G L Lester, M D , Chautauqua, N Y

This inquiry has been referred to two consultants whose respective replies follow —ED

ANSWER —In this instance two questions should be answered before treatment is considered 1 Does this patient have a sequestrum in the tibia or a localized bone abscess without sequestration? 2 Is the drainage due to a squamous cell carcinoma arising in the lining of the sinus tract?

The first question can be answered by an x-ray examination with or without the injection of the sinus with a contrast medium, and the second question can be answered by biopsy It is entirely possible that the intermittent drainage is due not to actual bone involvement but rather to the flare-up of infection in the scar tissue of the area As in all infections, it is desirable to know the nature of the specific organism, but in chronic osteomyelitis with sinus formation the culture usually brings out a mixture of organisms rather than the pure strain that is usually cultured in the acute form of this disease One of the difficulties of antibiotic therapy in the management of chronic osteomyelitis is that the disease is usually walled off by sclerotic bone and heavy avascular fibrous tissue, so that, however adequate the blood level of the antibiotic, there is no assurance that adequate amounts of the drug are reaching the causative bacteria

ANSWER —It is quite possible that a chronic osteomyelitis such as is mentioned can be cleared up with proper antibiotic therapy and, later, surgery Many cases that have been present for years have been at least fairly permanently arrested by this type of treatment Certainly, specimens from the depths of the wound should be cultured and sensitivity tests run on the organisms before any antibiotic therapy is begun, and usually it is best to use this in conjunction with adequate surgery

BLOOD PLATELET COUNTING

TO THE EDITOR —*I would like to comment on the statement that 'an enumeration of platelets by any method is at best an approximation," which appeared in the query about blood platelet counting in* THE JOURNAL, *Jan 26, 1957, page 327 With the method that I have outlined in my monograph "Physiology and Pathology of Hemostasis" (Philadelphia, Lea & Febiger, 1951, p 112), the platelets can be counted with the same precision as the erythrocytes because the adhesiveness and clumping of the cells are prevented Unfortunately, in many clinical laboratories platelets are not counted directly in a counting chamber but in a stained smear, and for such a procedure the comment that it is "at best an approximation is fully justified*

Armand J Quick, M D
Department of Biochemistry
Marquette University School of Medicine
Milwaukee 3

The above comment was referred to the consultant who answered the original query, and his reply follows —ED

TO THE EDITOR —*Everyone who devises a new method for counting platelets believes that he has overcome the deficiencies of the previous ones The very multiplicity of methods and the frequency with which new ones appear belie this, as do the experiences of many workers who use one or another method routinely The marked variability of repeated counts on the same withdrawn blood specimen and of consecutive counts made on the same individual is well known (Brecher and others* Am J Clin Path 23 15, *1953)*

The correspondent has described a direct method combining techniques previously used, namely, using siliconed glassware, cooling the specimen in ice water, diluting with the Rees-Ecker solution, and counting in a blood cell counting chamber It is better than some methods, but it is far from ideal The correspondent is of the opinion that the adhesiveness and agglutination of thrombocytes are due to thrombin formation, while most investigators believe that these are inherent properties by virtue of which platelets initiate and enhance the clotting process but which, at the same time, make them unamenable to accurate enumeration

« Washington News »

New Doctor Procurement Bill on Way Through Congress • •

Schools Want Higher Research Allowance for Overhead • •

Dr. Reuling on Delegation to WHO Meeting in Geneva • •

Congress Studying Dangers in Radioactive Fall-Out • •

HEARINGS ON NEW DOCTOR PROCUREMENT PROGRAM

Any new legislation for the special procurement of doctors should also continue the Medical Advisory Committees to the Selective Service System, in the opinion of the American Medical Association. The Association's views were presented to the House Armed Services Committee by Dr. Harold S. Diehl, dean of medical sciences at the University of Minnesota and Chairman of the A. M. A.'s Council on National Defense. Dr. Hugh Hussey, an A. M. A. Trustee, introduced Dr. Diehl to the committee and assisted him in answering questions by the representatives.

Before the committee is a Defense Department bill that would amend the regular draft act when the special "doctor-draft" act expires next June 30. The bill would authorize the drafting of physicians as physicians, and not necessarily in the same age groups as other draft-eligible men.

Dr. Diehl strongly recommended that the national, state, and local committees be continued. "As on past occasions," he said, "that committee can be of great assistance in advising the Department of Defense and Selective Service System on matters pertaining to reserve officers and military medical affairs. Furthermore, in the event of need for an immediate increase in mobilization requirements, it would be costly and time-consuming to authorize and effectively activate another chain of advisory committees."

In 1950 the A. M. A. supported a form of the original "doctor-draft" act as necessary to bring about the orderly and equitable procurement of military physicians, and in 1953 supported a one-year extension of the act. However, the Association vigorously opposed further extensions as unnecessary, Dr. Diehl pointed out. He cited the following statement adopted by the A. M. A. Board of Trustees in April:

"The Board of Trustees of the American Medical Association recommends that the discriminatory and undemocratic legislation known as the doctor draft act be terminated at the present expiration date, June 30, 1957."

Dr. Diehl outlined the A. M. A.'s position as follows: "The Association believes that if the demands for the defense and security of our nation are such that, in the opinion of Congress, it is necessary to have a Universal Military Training and Service Act to maintain the strength of our armed forces, then one method to insure a sufficient supply of physicians for the armed services would be to enact legislation such as is proposed [by the Defense Department].

"We are of the opinion that physicians should be (1) registered and classified in the same manner as other citizens in the same age group, (2) deferred for educational purposes in the same manner as other registrants, and (3) called to active duty or inducted under the same general provisions as other registrants deferred for educational purposes.

"As we understand it, this bill provides for a selective call-up of physicians, up to age 35, who have not as yet fulfilled their military obligation under the provisions of the basic Universal Military Training and Service Act. Discrimination will result from the administrative method which will have to be instituted by the Selective Service System to segregate the names of those physicians registered under the regular draft. Such a temporary procedure may be necessary, but when it is no longer required, we believe that even this degree of discrimination should be eliminated."

After two days of hearings, the committee voted to report favorably a bill providing for the selective call-up of physicians, dentists, osteopaths, and allied health personnel, but not beyond age 35. The bill also would continue the national state and local advisory committees, as well as some of provisions of the original draft act that were designed to protect the rights of physicians.

At the same time the committee voted to place in its report on the bill a statement recommending that the ratio of physicians to troops be continued at 3 per 1,000. Chairman Vinson said it was intended to "alert the Appropriations Committee so the military won't get the money" to carry out a planned increase in the ratio of 3.4 per 1,000.

LARGER U. S. SHARE OF RESEARCH OVERHEAD URGED

Medical schools and other research institutions were pictured to a Senate appropriations subcommittee as struggling against "terrific fiscal odds" while at the same time engaged in "one of the greatest give-away programs of all times." The witness was Dr. Lowell T. Coggeshall, president-elect of the American Association of Medical Colleges and former special health assistant to Secretary Folsom.

Dr. Coggeshall explained that the "give-aways" referred to the additional overhead expenses schools incurred in doing research. Federal spending for all research in private institutions amounted to only 15 million dollars at the start of World War II, while the total now is in excess of 300 million, he said. "When a few projects were supported in an institution they could be absorbed with little or no additional cost on the part of the university, but since the programs have reached the size they now assume, the demand for accompanying dollars is so great that many institutions are becoming genuinely alarmed."

The witness was supporting the administration's plea for Congress to permit up to 25% additional for overhead costs in any government research grant in the health field. The House, in voting the Health, Education and Welfare budget for the next fiscal year, set a 15% ceiling, which Secretary Folsom and other government witnesses argued was too low and out of line with other federal agencies.

Dr. Coggeshall explained overhead or indirect costs as including administration, maintenance, library expense, utilities, and space renovation. He insisted his was not "a plea for a hidden subsidy or a request for the government to support medical education" but was

(Continued on next page)

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Washington News—Continued

a 'straightforward request for the Department of Health, Education, and Welfare to pay its legitimate share of the costs of medical research Otherwise our institutions will become still further impoverished as they make up their deficits from reserves or by diverting funds from other essential educational purposes

He also noted in passing that tuition had risen in medical schools by 84% since 1940 Chairman of the appropriations subcommittee is Senator Lister Hill (D, Ala), who is sponsoring a bill for federal construction aid to medical schools Senator Hill also is chairman of the Labor and Public Welfare Committee, which handles such legislation

In earlier testimony Dr James A Shannon, director of the National Institutes of Health, said that other agencies of government have been allowing considerable for overhead costs in research but that in the health field it had been held at 8% up until 1954 The 15% figure since then, he added, is imposing a serious drain on operating funds, "which are at a critical point'

In other committee developments, the American Dental Association asked for funds to complete the National Dental Institute building at the National Institutes of Health and to increase research grants by 1 million dollars Other organizations testifying in support of more federal support for medical and allied research included the American Nurses Association, the National Paraplegia Foundation, the National Education Association, and the National Association for Retarded Children

WORLD HEALTH ASSEMBLY MEETING

The United States delegation to the World Health Assembly now under way at Geneva is made up of three physicians, including Dr James R Reuling, a Trustee of the American Medical Association Others are Dr Leroy E Burney, surgeon general of the Public Health Service, and Dr H van Zile Hyde, chief of the PHS division of International Health Alternate delegates are Dr Aims C McGuiness, special assistant for health to Secretary Folsom, and Howard B Calderwood, Ph D, of the State Department

Congressional advisers to the delegation are Representatives John Fogarty (D, R I) and Charles Wolverton (R, N J) Other advisers include Drs Lester W Burget, dean of the dental school, University of Pennsylvania, Eugene P Campbell, International Cooperation Administration, Edwin L Crosby, executive director, American Hospital Association, Franklin D Yoder, president, State and Territorial Health Officers, and Richard C K Lee, Honolulu Board of Health The Health Assembly meets annually as the supreme authority for the World Health Organization Its role includes review of the WHO budget and programs

CONGRESS TO STUDY RADIOACTIVE FALL OUT

Congress will look into the problem of radioactive fall-out from nuclear weapon explosions The Joint Committee on Atomic Energy has named a special subcommittee to investigate the situation, with Rep Chet Holifield (D, Calif) as chairman Mr Holifield headed a House government operations subcommittee that made an extensive study last session of the civil defense setup

The radiation hearings, set for May 27 through June 7, will study such things as how much radioactive debris is being scattered in the atmosphere by nuclear weapons, the genetic effects of radiation, and the relationship of the body's intake of strontium 90 to bone cancer and leukemia Following discussion of these matters, an attempt will be made to project the effects of continued testing of weapons, the committee said

Mr Holifield commented One of the major problems in previous discussions has been that the Congress and the public had been snowed under by a welter of uncoordinated information and scientific terminology without having an adequate frame of reference for their guidance Chief purpose of the hearings is to provide such a frame of reference through presentation of scientific information in a form which is readily understandable to the layman as well as the scientist'

The hearings, he said, should provide background information for the committee, which is planning separate hearings on radiation injuries to workers and on workmen's compensation in this field

RESEARCH IN VETERANS ADMINISTRATION

Latest reports on medical research in the Veterans Administration show about 4,000 active projects under way, a forty-fold increase in the last 11 years During the same period, the VA researchers published papers increased from approximately 20 to more than 900

Discussing research, the report states

There are today, in the Department of Medicine and Surgery, resources of intellect, ability, and imagination which make the agency an important contributor not only to the health of veterans, but also to the advancement of medical knowledge for the benefit of the entire country

This has come about, in no small measure, as the result of the substantial assistance of the medical schools and the efforts of large numbers of the medical profession in the United States serving in advisory, consultant, and training capacities'

The VA's medical research has been largely conducted on a decentralized basis, with interns, residents, and junior staff members as well as senior members encouraged to suggest projects The suggestions are evaluated first by a hospital research committee, then by the dean's committee, if there is an affiliated medical school

Among future studies expected to be undertaken are evaluation of early diagnostic and treatment measures for glaucoma, evaluation of treatment measures for Parkinson s disease, a cooperative investigation of treatment measures for diseases of the adrenals and other endocrine glands, studies in treatment and rehabilitation of patients with aphasia and therapies for epilepsy, and studies of the blood of patients with heredity diseases of the nervous system

NAVY COMMISSIONS AVIATION MEDICAL CENTER

The Naval Aviation Medical Center at Pensacola, Fla, has been formally commissioned, with Capt Lester E McDonald as commanding officer The center brings in these activities Naval School of Aviation Medicine, the Naval Hospital, and certain parts of the Naval Dispensary

According to Navy Surgeon General Hogan, establishment of the center will make it possible to provide for more effective and economical integration of existing medical department facilities and personnel It also will extend "the scope and improve the quality of educational, clinical and research aspects of aviation medicine, which is necessary to meet the ever increasing demands imposed on today s aviation and future naval aviation

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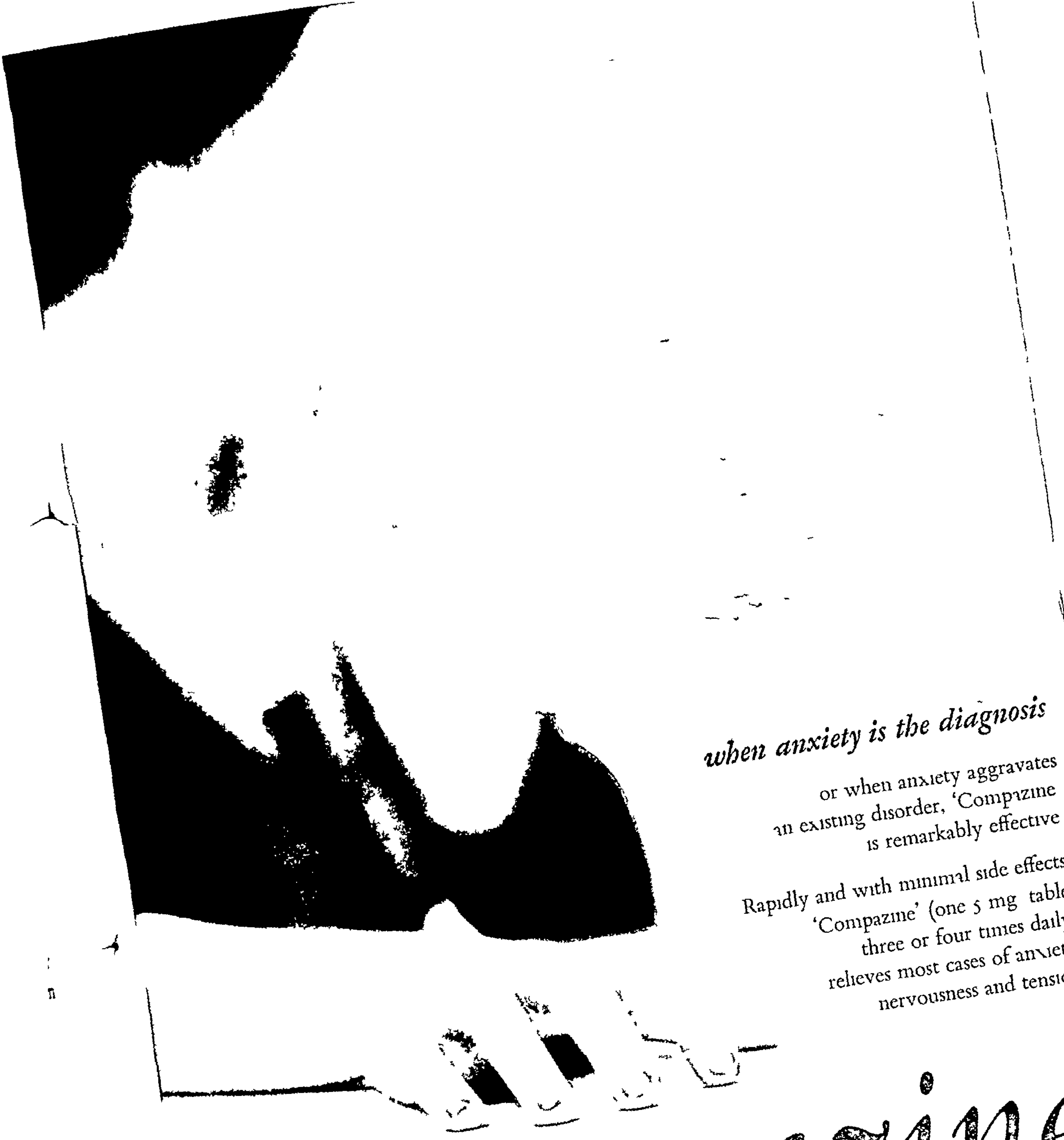

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MEETINGS

AMERICAN MEDICAL ASSOCIATION Dr George F Lull, 535 North Dearborn St, Chicago 10 Secretary
1957 Annual Meeting New York June 3-7
1957 Clinical Meeting Philadelphia Dec 3 6
1958 Annual Meeting San Francisco June 23 27
1958 Clinical Meeting, Minneapolis Dec 2 5
1959 Annual Meeting Atlantic City June 8-12
1959 Clinical Meeting Dallas, Texas, Dec 1-4

AMERICAN

May

Alaska Territorial Medical Association Elk's Club Ketchikan May 29-31 Dr Robert B Wilkins 1121 Fourth Ave Anchorage Secretary

American College of Chest Physicians Hotel Commodore New York May 29 June 2 Mr Murray Kornfeld 112 E Chestnut St Chicago 11 Executive Director

American *Geriatrics Society Waldorf-Astoria* New York *May 30 31* Dr Richard J Kraemer Greenwood R I Secretary

American Goiter Association Hotel Statler New York May 28 30 Dr John C McClintock 149½ Washington Ave Albany N Y Secretary

American Gynecological Society The Homestead Hot Springs Va May 27 29 *Dr Andrew A Marchetti 3800 Reservoir Road N W* Washington 7 D C Secretary

American Medical Women's Association Barbizon Plaza New York May 30 June 2 Miss Lillian T Majally 1790 Broadway New York 19 Executive Secretary

American Ophthalmological Society The Homestead, Hot Springs Va May 30-June 1 Dr Maynard C Wheeler 30 W 59th St, New York 19 Secretary

American Radium Society Quebec City Canada May 30-June 1 Dr Theodore R Miller 139 E 36th St New York 16 Secretary

American Society for the Study of Sterility New York May 31-June 2 Dr Herbert H Thomas 920 S 19th St Birmingham 5 Ala Secretary

American Therapeutic Society Essex House New York May 30 June 2 Dr Oscar B Hunter Jr 915 19th St N W Washington 6 D C Secretary

Catholic Hospital Association of the United States and Canada Hotel Statler Cleveland May 27-30 Mr M R Kneifl 1438 S Grand Blvd St Louis 4 Executive Secretary

Illinois State Medical Society Hotel Sherman Chicago May 21 24 Dr Harold M *Camp* 224 S *Main St* Monmouth *Secretary*

Massachusetts Medical Society Hotel Statler Boston May 21 23 Dr Robert W Buck 22 The Fenway Boston 15 Secretary

North Dakota State Medical Association Gardner Hotel Fargo May 25 28 Mr Lyle A Limond Box 1198 Bismarck, Executive *Secretary*

South Dakota State Medical Association Cataract Hotel Sioux Falls May 18 21 Mr John C Foster 300 1st National Bank Bldg Sioux Falls Executive Secretary

The Endocrine Society Hotel New Yorker New York May 30 June 1 *Dr Henry H Turner 1200 N Walker St Oklahoma City* 3 Secretary

United States Section International College of Surgeons Regional Meeting Eastern Whiteface Inn Lake Placid N Y, May 30 June 1 Dr James P Fleming 125 Meigs St Rochester 7 N Y General Chairman

Western Branch American Public Health Association Lafayette Hotel Long Beach Calif May 29-June 1 Mrs L Amy Darter 2151 Berkeley Way Berkeley 4 Calif Secretary

June

American Academy of Tuberculosis Physicians Henry Hudson Hotel New York June 1 Dr Oscar S Levin P O Box 7011 Denver 6 Secretary

American Association of Neuropathologists Claridge Hotel, Atlantic City N J June 16-17 Dr Leon Roizin 722 W 168th St New York 32 Secretary

American College of Angiology Plaza Hotel New York June 1-2 Dr Alfred Halpern 15 East 62d St New York 21 Executive Secretary

American Diabetes Association Hotel Commodore New York June 1-2 Dr Franklin B Peck Sr 1 East 45th St New York 17 Executive Secretary

American Hearing Society St Louis June 5-9 Mr Crayton Walker 1800 H St, N W Washington 6 D C, Executive Director

American Neurological Association Hotel Claridge, Atlantic City N J, June 17-19 Dr Charles Rupp 133 S 36th St Philadelphia 4 Secretary

American Orthopedic Association The Homestead Hot Springs Va June 24-27 Dr Harold A Safield 715 Lake St Oak Park Ill Secretary

American Pediatric Society, La Playa Hotel Carmel Calif June 17-19 Dr A C McGuinness 1427 I St N W Washington 5, D C., Secretary

American Physicians Art Association Plaza Hotel, New York June 3 7 Dr Francis H Redewill Jr 124 East Hadley St Whittier Calif Secretary

American Rheumatism Association Royal York Hotel Toronto Ont., Canada June 23 28 Dr Edward F Hartung 580 Park Ave New York 21 Secretary

American Society of Facial Plastic Surgery Biltmore Hotel, New York, June 5 Dr Samuel M Bloom 123 E 83d St New York 28 Secretary

Association for Research in Ophthalmology Park Sheraton Hotel, New York June 3 Dr Lorand V Johnson 10515 Carnegie Ave Cleveland 6 Secretary

Conference of Presidents and Other Officers of State Medical Associations Waldorf-Astoria New York June 2 Mr James A Waggener 1021 Hume Mansur Bldg Indianapolis 4 Secretary

Idaho State Medical Association Sun Valley June 16 19 Mr Armand L Bird 364 Sonna Bldg, Boise Executive Secretary

Maine Medical Association The Samoset Hotel Rockland June 23 25 Dr Daniel F Hanley Dudley Coe Infirmary Bowdoin College Brunswick Executive Director

North American Chapter International Society of Angiology Biltmore Hotel New York June 1 Dr Henry Haimovici 105 E 90th St New York 28 Secretary

Society of Biological Psychiatry Claridge Hotel Atlantic City N J June 15-16 Dr George N Thompson 2010 Wilshire Blvd Los Angeles 57 Secretary

Society for Investigative Dermatology *Belmont Plaza Hotel* New York June 1 2 Dr *Herman Beerman* 255 S *17th St* Philadelphia 3 Secretary

Society of Nuclear Medicine *Skirvin Hotel* Oklahoma City June 20 23 Dr Robert W Lackey 452 Metropolitan Bldg Denver Secretary

Society for Pediatric Research *La Playa Hotel* Carmel *Calif* June 16 21 Dr *Sydney S* Gellis 330 *Brookline Ave* Boston 15 *Secretary*

Society for Vascular Surgery Biltmore Hotel New York June 2 Dr Henry Swan 4200 E 9th Ave Denver 20 Secretary

The University of Michigan Regional Conference on Hypertension Ann Arbor, Mich June 7 8 Dr John Sheldon Univ of Michigan Medical School Ann Arbor Mich Director

Woman's Auxiliary to the American Medical Association Roosevelt Hotel New York June 3 7 Miss Margaret Wolfe 535 N Dearborn St., Chicago 10 Secretary

Wyoming State Medical Society Jackson Lake Lodge Moran June 16 19 Mr Arthur R Abbey Box 2036 Cheyenne Executive Secretary

July

American Congress on Maternal Care Palmer House Chicago July 8-12 Mr Howard I Wells Jr 116 S Michigan Ave Chicago 3 Executive Secretary

Rocky Mountain Cancer Conference Shirley Savoy Hotel Denver July 10-11 Dr John S Bouslog 835 Republic Bldg Denver Chairman

INTERNATIONAL AND FOREIGN

May

Congress of French Chapter International College of Surgeons Reims France May 24 26 1957 Dr *Darget 17 rue Casteja Bordeaux* (Gironde) France Secretary-General

Congress of International Association for Study of the Bronchi *Lisbon* Portugal May 25 26 1957 For information address Prof F Lopo de Carvalho 138 rua de Junqueira Lisbon Portugal

International Congress for Social Medicine Vienna Austria May 30 June 2 1957 Secretariat Prof Dr T Antonione Vienna 9 Spitalgasse 23 Austria

International Voice Conference (Laryngeal Research Function and Therapy) Chicago Illinois U S A May 20 22 1957 For information address *Dr Hans von Leden* 30 North Michigan Ave., Chicago 2 Illinois U S A

World Congress for Acupuncture Vienna Austria May 25 28 1957 *For information address Austrian Association for Acupuncture* VI Schwenderstrasse 57 Vienna Austria

June

Canadian Medical Association Edmonton Alberta Canada June 17 21 1957 Dr A D Kelly 150 St George Street Toronto 5 Ont Canada General Secretary

International Congress on Medical and Scientific Film Palace of Expositions at the Valentino Turin Italy June 1-9 1957 For information address Secretariat Minerva Medica Corso Bramante 83 85 Turin Italy

International Congress on Medicine and Surgery Palazzo of Expositions at the Valentino Turin Italy June 1-9 1957 For information address Segreteria Generale Minerva Medica. Corso Bramante 83-85 Turin Italy

International Congress of Photobiology Torino Italy June 2 8 1957 For information address Prof Enrico Benassi Dept of Radiology University *of Torino Torino Italy*

International Congress on Rheumatic Diseases Toronto Ont. Canada June 23-28 1957 For information address International Congress on Rheumatic Diseases P O Box 237 Terminal A Toronto Ont., Canada

International Convention of X-Ray Technicians *Sheraton Park* Hotel Washington D C U S A June 8 13 1957 Miss Leslie A Majors R T 5710 Newton St Cheverly Md U S A. Chairman, Publicity Committee

International Hospital Federation *Lisbon* Portugal June 3 7 1957 Capt J E Stone 10 Old *Jewry* London EC2 England Secretary General

(Continued on page 28)

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William Harvey Tercentenary Congress Royal College of Surgeons London England June 3-7 1957 Dr D Geraint James Harveian Society of London 11 Chandos St Cavendish Square, London W 1 England Honorary Secretary

July

British Medical Association Newcastle upon Tyne July 15 19 1957 Dr A Macrae B M A House Tavistock Square London W C 1, England Secretary

International Congress of Clinical Pathology Brussels Belgium July 15 20 1957 Prof M Welsch Service de Bacteriologie et de Parasitologie Universite de Liege 32 Blvd de la Constitution Liege Belgium Secretary General

International Congress of Dermatology Stockholm Sweden July 31-Aug 6 1957 Dr C H Floden Karolinska Sjukhuset, Hudkliniken Stockholm 60 Sweden Secretary General

International Congress of Electroencephalography and Clinical Neurophysiology Brussels Belgium July 21-28 1957 For information address Dr R G Bickford Mayo Clinic Rochester Minnesota U S A

International Congress of Neurological Sciences Brussels Belgium July 21 28 1957 For information address Dr Pearce Bailey National Institute of Health Bethesda 14 Maryland U S A

International Congress of Neuropathology Brussels Belgium July 21 28 1957 Dr Ludo van Bogaert 47 rue de l Harmonie Antwerp Belgium Secretary General

International Congress of Neurosurgery Brussels Belgium July 21 28 1957 For information address Dr William B Scoville 85 Jefferson Street Hartford Connecticut U S A

International Congress of Nutrition Paris France July 24 29 1957 For information address Congress International de Nutrition 71 Blvd Pereire Paris 17e, France

International Congress on Occupational Health Helsinki Finland July 1 6 1957 Dr Pertti Sumari c/o Tyoter Veyslaitos Haattmaninkatu 1 Helsinki Toolo Finland Secretary General

International Congress of Permanent International Committee on Industrial Medicine Helsinki Finland July 1-6 1957 For information write Secretary General 3 Chemin de l Escalada Geneva Switzerland

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International Congress of Psychology Brussells Belgium July 28 Aug 3 1957 Dr M Louis Delys, 296 Ave des Sept Bonniers Forest Brussels Belgium Secretary-General

International Gerontological Congress Merano Bolzano Italy July 14 19 1957 For information address Segreteria Quarto Congresso Internazionale de Gerontologia Viale Morgagni 85 Firenze Italy

International League Against Epilepsy Brussels Belgium July 21 28 1957 Dr Radermecker Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Meeting on Forensic Pathology Brussels Belgium July 20 21 1957 For information address Dr F E Camps Dept of Forensic Medicine The London Hosp Medical College Turner St London E 1 England or Dr Arthur H Dearing Executive Secretary College of American Pathologists 2115 Prudential Plaza Chicago 1 Ill U S A

International Neurological Congress Brussels Belgium July 21 28 1957 Dr Ludo van Bogaert Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Poliomyelitis Conference Geneva Switzerland July 8-12 1957 Secretariat Hotel du Rhone Geneva Switzerland

International Psychoanalytical Association Paris France July 28 Aug 1 1957 For information write Dr S Nacht 187 rue St Jacques Paris France

International Society of Geographical Pathology Paris France July 9 11 1957 For information address Dr J P Hardouin 21 Avenue Pierre de Serbie Paris 16 France

International Society for the Welfare of Cripples London England July 22 27 1957 For information address Miss M Drury 34 Eccleston Square, London S W 1 England

International Symposium on Medical Social Aspects of Senile Nervous Diseases Venice Italy July 20 21 1957 For information address Secretariate Viale Morgagni 85 Firenze Italy

Neuroradiologic Symposium Brussels Belgium July 21 28 1957 For information address Professor Melot Hopital Universitaire St Pierre Brussels Belgium Secretary General

August

Argentine Congress of Gastroenterology Salta Argentina S A Aug 12-17 1957 Secretariat Avenida Santa Fe 1171 Buenos Aires Argentina S A

Congress of International Society for Cell Biology St Andrews Fife Scotland Aug 28 Sept 3 1957 Prof H G Callan Bell Pettigrew Museum The University St Andrews Fife Scotland Secretary General

International Congress on the Biology of the Hair Follicle and the Growth of Hair Royal Society of Medicine London England Aug 7 9 1957 Dr G H Bourne London Hospital Medical College Whitechapel London E 1 England Hon Secretary

International Congress of European Society of Haematology Copenhagen Denmark Aug 26 31 1957 Dr Aage Videbask Blegdamsvej 11 Copenhagen Denmark Secretary General

International Congress on Group Psychotherapy Zurich Switzerland Aug 29 31 1957 For information write Dr Joshua Bierer 140 Harley St London W 1 England

International Society for the Study of Biological Rhythms Semmering Austria Aug 26 28 1957 For information write Prof A Jores II Med Universitats Klinik Hamburg Eppendorf Germany

International Symposium on Curare and Curarizing Substances University of Brazil Rio de Janeiro Brazil Aug 5 10 1957 For information write Prof Carlos Chagas Instituto de Biofisica Universidade de Brazil 458 Avenida Pasteur Rio de Janeiro Brazil or Prof Daniel Bovet Instituto Superiore di Sanita 299 Viale Regina Elena Rome Italy

World Federation for Mental Health Copenhagen Denmark Aug 11-17 1957 Miss E M Thornton M A, 19 Manchester St London W 1 England Secretary-General

September

Congress of International Society of Orthopedic Surgery and Traumatology Barcelona, Spain Sept 16 21 1957 For information address International Society of Orthopedic Surgery and Traumatology 34 rue Montoyer Brussels Belgium

Congress of International Union of Railway Medical Services Paris France Sept 16 21 1957 For information write Dr J Ortega 41 rue Michelet Paris 6 France

International Conference on Radio Isotopes in Scientific Research Paris France Sept 9 20 1957 For information address United Nations Educational Scientific and Cultural Organization 19 Avenue Kleber Paris 16 France

International Congress of the International Union of the Medical Press London England Sept 13-14 1957 For information write British Medical Association B M A House Tavistock Square London W C 1 England

International Congress of Military Medicine and Pharmacy Beograd and Opatija Yugoslavia Sept 29 Oct 5 1957 Colonel Dr Aleksandar Mezic rue Nemanjina 15 Beograd Yugoslavia Secretary General

International Congress of Psychiatry Zurich Switzerland Sept 1 7, 1957 For information write Prof J Wyrsch Stans (Lucerne) Switzerland

International Symposium of Medicine and Social Hygiene Trieste September 6 12 1957 Dr Mario Lovenati Via Cavana 18 Trieste Secretary-General

(Continued on page 30)

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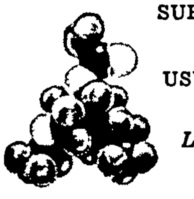

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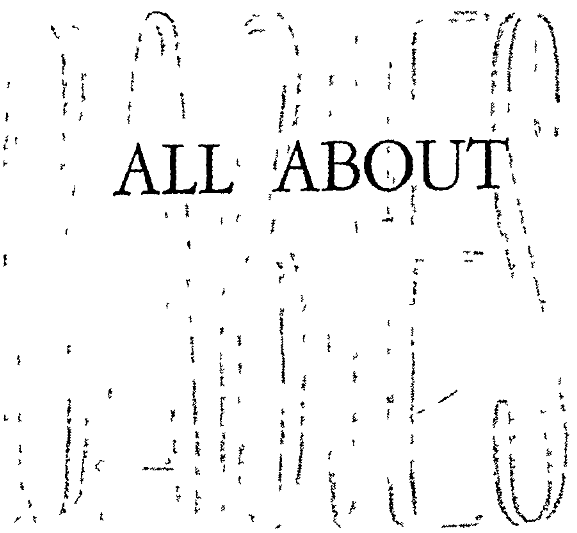

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World Medical Association Istanbul Turkey Sept 29 Oct 5 1957 Dr Louis H Bauer 10 Columbus Circle, New York 19 New York, U S A Secretary General

October

Assembly of Association of French Speaking Doctors Great Hall Faculty of Medicine 85 Boulevard Saint Germain Paris France Oct. 16 18 1957 For information address General Secretary Congrés Francais de Medecine Prof G Boudin, Paris France

Congress of International Society of Surgery, Mexico City Mexico Oct 27-Nov 2 1957 Dr L Dejardin 141 rue Belliard, Brussels Belgium General Secretary

French Congress of Otolaryngology Faculte de Medecine de Paris Paris France Oct 15-18 1957 For information address Administrative Secretary French Congress of Otolaryngology 17, Rue de Buci Paris France

International Congress of International Society of Angiology Atlantic City N J U S A Oct. 10 13 1957 Dr H Haimovici 105 East 90th Street New York 28 New York, U S A Secretary General

November

Inter-American Congress of Pan American Medical Association Mexico City Mexico Nov 18 22 1957 Dr Joseph J Eller 745 Fifth Ave New York 22 N Y, U S A Executive Director

Pacific Science Congress Bangkok Thailand Nov 18 Dec 2 1957 For information address Pacific Science Council Secretariat Bishop Museum Honolulu 17 Hawaii

Pan American Congress of Endocrinology Buenos Aires Argentina Nov 3 9 1957 For information address Secretaria General Sociedad Argentina de Endocrinologia y Metabolisms Santa Fe 1171 Buenos Aires Argentina

Pan Pacific Surgical Congress Honolulu Hawaii Nov 14 22 1957 Dr F J Pinkerton Room 230 Alexander Young Bldg Honolulu 13 Hawaii Director-General

1958

April

International Congress of Internal Medicine Sheraton Hotel Philadelphia, Pa USA April 24-26 Mr E R Loveland 4200 Pine St. Philadelphia 4 Pa USA, Secretary General

International Congress of Legal and Social Medecine Madrid Spain, April 16 19 For information address Prof B Piga Dept of Legal Medicine Madrid University Madrid Spain

MAGAZINE—TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported*

TELEVISION

Sunday, May 26

ABC-TV 4 30 p m EST Medical Horizons' will go to the University of Pittsburgh for a discussion with Dr Robert Olsen on obesity The program is produced in cooperation with the American Medical Association

MAGAZINES

Parade, May 19, 1957

Finally—A Diet You Can Trust!' by Robert P Goldman This article recommends a 'basic diet' as a yardstick for losing weight Fad diets are deplored Good nutrition while dieting is stressed

Look, May 28, 1957

Children in Search of Sanity, by Roland H Berg, *Look* Medical Editor

This article takes a look into the Emma Pendleton Bradley Home Riverside, R I, and reveals something about the emotionally disturbed children there It suggests broader implications, i e, Society as a whole must share the burden

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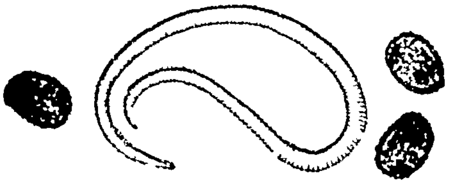

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From other Pages

The Lore of Stones and Medicine

The lore of stones is multitudinous and of great interest Apart from providing the instruments and weapons of our 'lithic ancestors, this material has always been endowed with magical properties, and the fact that it could descend from heaven (in the form of meteorites) invested it with special sanctity Flints and arrowheads of the Stone Age were later looked upon as elfin arrows which could kill cattle by penetration of the hide with insignificant entrance wounds The sudden stab of pain which signalled an attack of lumbago was thought to be an elf shot, which was cured by boiling a stone arrowhead and drinking the water In Ireland the mitre stone of a high cross is still placed on the head to cure headache Healing stones are common all over Europe After devotional preliminaries the suppliant passes the stone round his body sun-wise It is said that passage in the reverse direction invokes a curse on one s enemies Healing stones are reputed to have the miraculous property of returning to their normal resting-place Some have been stolen, thrown into the ocean or carried to sufferers too ill to make the pilgrimage but they always return Stones for curing backache are very common, like the crickstone at Morna Cornwall and at the Church of the Holy Sepulchre in Jerusalem The water which collects in basin stones is reputed curative of warts, skin and eye diseases at some a pin thrown into the water reinforces the cure Other stones credited with healing virtues are organic concretions and various precious stones Adder stone (coralline limestone) was reputed effective against snake-bite, and the mythical toad stone against furies and all calamities The savage medicine-man carries as equipment stones—renal gall, or even small pebbles Bezoar (gall stones or enteroliths) was popular in the sixteenth and seventeenth centuries for prevention of plague and poisoning These were scarce expensive and frequently faked Lithontriptics were stones used to dissolve stones in the homeopathic mode, for example, grit from a cock s crop was powdered and drunk in water to dissolve bladder stone In 1739 Mrs Joanna Stevens received by Act of Parliament £5,000 for the recipe of her stone remedy, which consisted of calcined egg shell, snails, pigs droppings soap, burdock hips and haws

Amulets can be of any material—wood, mineral, hair, amber crystal or precious stones gems and jewels have a magical lore of their own Amber beads were worn to prevent plague and in Ireland cataract is relieved by rubbing the eyes with the tenth bead of a rosary Blood stones and red coral were given (powdered) for hæmorrhage—a homeopathic remedy Coral was also hung round infants necks as protection against fits and sorcery and many old types of children s rattle have a stem of this material Coral changed colour in the presence of poison which made it a prized possession and heirloom in the Middle Ages It changed colour also according to the state of health of the wearer, a property shared by the turquoise, opal and pearl The amethyst (from the Greek not drunk) rendered its wearer proof against inebriation Amulets were safeguards from the accidents of life, from evil machinations, or to promote health, wealth and prosperity Personal amulets were worn next the skin, household ones (e g , horseshoes) fixed to the door Early in the present century all chemists stocked camphor moulded in the shape of a Maltese cross, which was worn as a preventive of infection and iodine lockets as charms or cure for everything went into the limbo not very many years ago People have been known to carry a potato as a charm against rheumatism Some previous or semi-previous stones cut and mounted in gold or silver and often carved with cabalistic symbols have become famous as healers —T H Crozier, M D , Folklore and Medicine, *The Ulster Medical Journal,* Nov 1, 1956

Galen

When Galen began his studies of anatomy and physiology, medicine was almost entirely innocent of a scientific basis Hippocrates initiation of rational medicine had been a tour de force founded only on shrewd observation, and the lesser men who followed him in the 500 years before Galen were split into squabbling sects Galen 'set out to develop systematic descriptions of the human body He was handicapped by the fact that it was forbidden to dissect the dead The only part of human anatomy that he could investigate in toto was the skeleton, which he often did where tombs or monuments have been broken up For the rest he relied on dissections of animals, including monkeys, and on examinations of tissues exposed in patients with disease or wounds While he was studying with Satyrus at Pergamon there was an epidemic of carbuncle (probably anthrax) which destroyed areas of skin and flesh in many of the victims Galen wrote later Those of us who had seen Satyrus dissecting any of the denuded parts, easily recognized them and made a complete diagnosis, telling the patients to make some movement which we knew to be carried out by such and such a muscle, and sometimes diverting or drawing aside the muscles to observe an adjacent large artery, nerve or vein We saw that all the other physicians were like blind men without any knowledge of the parts exposed

Galen was the first to demonstrate that muscle has but one action—contraction He proved by experiments that the movement of a muscle during its relaxation was produced by the contraction of an opposing muscle He went on to establish that each muscle has only one direction of contraction Attempting to discover what force caused muscles to contract, Galen came to the conclusion that the force originated in the brain and was communicated to the various muscles by the nerves He arrived at this idea as a result of a wonderful series of experiments on the nervous system, particularly the spinal cord Operating on experimental animals, he systematically cut the cord at one vertebra after the other down the backbone He found that when he severed the cord between the first and second vertebrae in the neck, the animal instantly stopped breathing and died Further down, the animal survived and retained certain functions When he cut the cord between the sixth and seventh vertebrae, for instance, the chest muscles were paralyzed but the animal was able to breathe by means of its diaphragm When he cut below the eight vertebra, the arms escaped paralysis He also observed that when the cord was cut only half way through only one side of the body was paralyzed In this way Galen mapped the control areas of the cord In addition he investigated various peripheral nerves and established that in general the interruption of a nerve caused loss of motion and sensation below the block but not in the part of the body between it and the brain Galen's general concept of the body s physiology comes reasonably close to modern ideas If we substitute oxygen for vital spirit,' and nerve electrical potential for "animal spirit, the system begins to approach a 20th century description —F G Kilgour, Galen, *Scientific American,* March, 1957

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REHABILITATION OF THE CARDIAC PATIENT

Herman K. Hellerstein, M.D.
and
Amasa B. Ford, M.D., Cleveland

• *The process of rehabilitation begins at the moment the patient is first stricken with his disease. The goal is the maximal attainment within the patient's capacities. In approximately 80% of cardiac patients the total program can be managed by the private physician; in others, a team approach and help from specialists is necessary. It is assumed that adequate attention has been given to medical therapy, rest, relief of pain, oxygen requirements, nutrition and sedation. In addition, the patient's emotional problems must be dealt with. The period of passivity which is frequently required at first should be terminated as soon as possible. The periods of hospitalization and of convalescence at home are followed by a period of vocational readjustment, and each presents problems that can be solved on the basis of available facts. There has been no evidence that employment has aggravated the underlying disease in cardiac patients, and there have been no medicolegal compensation cases involved in the employment of such patients.*

This report describes an orderly plan for the rehabilitation of the patient with heart disease from the initial illness through convalescence to the return to the world of work. Although many disciplines (medical, psychiatric, vocational, social service, occupational therapy, and physical therapy) may be employed, the physician is the guiding force and cohesive influence throughout the total illness and treatment. We assume that treatment of the cardiac patient is directed to the whole patient and to the total illness.

The physician's responsibility is for the comprehensive management of the patient, that is, diagnosis, medical or surgical care, convalescence, rehabilitation, and work prescription. Each phase of care must enjoy the same status as that of the so-called scientific aspects of diagnosis and treatment. The practice of rehabilitation should not be below the dignity of the physician. He should derive as much satisfaction from helping an incontinent hemiplegic patient to get to the stage where he can get out of bed to care for his own needs or from returning a coronary patient to competitive industry in a proper job as from making the diagnosis of monocytic leukemia or from controlling a case of ventricular tachycardia.[1]

Rehabilitation of the patient with heart disease involves the same basic principles and problems as rehabilitation of patients with any other type of disease. The term rehabilitation is defined as a process by which a patient is returned realistically to his greatest physical, mental, social, vocational, and economic usefulness and, if employable, is provided an opportunity for gainful employment in a competitive industrial world.[2] Rehabilitation has also been called restorative medicine.

The process of rehabilitation begins the moment the patient is first stricken with the disease, or at least when he is over the acute illness, and extends to the time when he is free of pain and out of the life-endangering stage. The need for rehabilitation is considered to exist in all etiological groups, in all economic groups, and in mild, moderate or severe cases. The greatest need for rehabilitation exists for the patient with a relatively mild or moderate case, who, in the opinion of Irvin,[3] has been most neglected. Rehabilitation of the cardiac patient in industry basically concerns patients with mild cases, since over 70% of cardiac patients in industry fall in classes 1 and 2 (New York Heart Association functional classification). Industry is apparently not aware of the ease and success in rehabilitating this large group of patients with mild cardiac conditions. While outstanding success has been attained in the rehabilitation of the few severely impaired patients, numerically the greatest need is in the patients with milder cases, among whom the success will be the greatest.

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Read before the Section on Physical Medicine at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956.

Important Factors

The specific goals of rehabilitation for the individual patient are variable for some merely to leave the hospital, for others to return to the world of society, and for others to return to competitive employment Regardless of the goal, each patient is eligible for rehabilitation to his maximal attainment

In approximately 80% of patients, the private physician can manage the total rehabilitation The other patients need the benefit of other disciplines (psychiatric, social service, occupational therapy, physiotherapy, and vocational counseling) and a team approach

Nature and Course of Heart Disease—The type of heart disease, extent of structural involvement, natural course of the disease, and extent of functional impairment are of major importance There is considerable variation in the course of a given patient's heart disease, *although, in general the prognosis is* quite predictable but subject to natural variations and to modifications by new methods of therapy As more is learned about the natural course of heart disease, the outlook becomes less unfavorable Dock[4] has recently compared the outlook of myocardial infarction with that of lobar pneumonia and considers it to be good and subject to improvement by dietary and other types of therapy The physician must know that spontaneous improvement does occur in a significant percentage of cases and that the course of heart disease is not necessarily downhill

Emotional Factors—In 46% of the patients studied at the Cleveland Work Classification Clinic, emotional factors were next in importance to the heart disease per se Much of this emotional difficulty was based upon fear anxiety and tension states that developed in previously susceptible individuals Even in the most stable patient the onset of heart disease is associated with periods of anxiety and depression The fear of death is often accentuated by publicity in newspapers and other mediums devoted to heart disease and by the economic and social pressures attendant on the development of heart disease

Emotional disability, however, often arises from the interrelationship of the patient and his doctor The patient's role in the genesis of iatrogenic disability is considerable There is often a purposeful or subconscious garbling or misinterpretation of the physician's remarks or attitudes to fulfill what the patient wishes to hear, a form of selective deafness or miscomprehension Heart disease often provides a strengthening of the patient's pre-illness basic needs, for example, an excuse to withdraw or flee from life's demands However, the physician's role may be more important The physician may be unwittingly careless in his words, attitudes, and management and thus contribute to the disability The physician may also be misinformed about the natural cause of heart disease or uninformed about the latest advances He may restrict the patient unnecessarily or misinterpret laboratory procedures

The physician's contribution to the emotional problems of heart disease may stem from secondary gains which the physician derives from the patient's continued disability These secondary gains can be considered to be psychological, financial, or professional Quite characteristically, anxious physicians have more anxious and desperate patients What are the gains, conscious or subconscious, for the physician in creating anxiety and disability? Crepe hanging, ominous prognosis of death, and overdramatization of the illness and its possible variations often reflect the psychological need of the physician to exert his power over life and death In other words, some physicians feel that, if they cannot prevent death, at least they can predict it with a flourish, often deriving great inward satisfaction from this

The physician may consider the terms impairment and disability to be synonymous Legally, total disability means the inability to resume a previous occupation The misinformed physician may disable his cardiac patient unnecessarily because he is unaware that most such patients suffer only slight impairment, let alone disability The physician should not embrace the popular idea that all patients with heart disease are to some extent incapacitated

In a few cases, iatrogenic disability has a financial connotation The more fearful the patient, the closer and more costly his medical care Sprague[5] has suggested that in a few cases the continued disability of the patient is financially beneficial to the physician

A different type of economic implication in medical overprotection rests on the fact that many physicians are fearful of returning the cardiac patient to work because a death claim might reflect on the physician's practice Often, however, the physician overprotects the patient in response to the patient's anxiety and to the pressures from the patient and his family or employer The gains may also be selfish in another way, that is, to further a favorite method of therapy Fear of impending death has been used to persuade asymptomatic patients with certain types of heart disease to submit to costly experimental procedures, the usefulness of which has not yet been clinically established beyond a doubt

Vocational Factors—Vocational factors include age race, previous training, literacy, educational background, work history and work performance, interest in hobbies, skill levels, and job opportunities The problem of transportation may be of prime importance The stresses of traveling to and from a job and the work involved in walking long distances to the place of employment may far exceed the energy expenditure required to perform the job Taxing features on the job, such as noise, dust, lifting, and incentive production, may be most important in determining the employability of a person with heart disease

Such other diseases of significance as diabetes mellitus, peptic ulcer, gallbladder disease, tuberculosis, arteriosclerosis, progeria, and neoplasm may complicate rehabilitation and prognosis

Management at Onset of and During Acute Illness

In the subsequent discussion it is assumed that adequate medical therapy is prescribed in all instances The importance of rest, relief of pain, restoration of oxygen system, adequate nutrition, and sedation is taken for granted Specific therapeutic and rehabilitative measures must be planned in detail to fit the specific needs of the patient

During Acute Episode—During the treatment of the acute episode, it is important, in order to prevent future disability due to fear, that the physician present to the patient a positive attitude, both hopeful and realistic, based on the knowledge that most patients recover from acute episodes of myocardial infarction pulmonary edema and congestive failure He must be able to restrict the patient's activity without constricting his ego, one of the most important tasks in rehabilitation

After Crisis—After the crisis is over, there is a need to explain the immediate and long-term prognosis to the patient and to his family The patient will need help in accepting the fact of his heart disease He should be informed in general terms of the plan of therapy and of the nature of his heart disease A concerted effort should be made to help the patient develop some insight into his disease and to encourage a receptive mood for future rehabilitation The rationale of such care as dietary control, cardiac medication, and use of diuretics should be presented to the patient in general physiological terms A simple description of heart function is well within the grasp of most patients During the process of explanation and education, a relatively optimistic attitude should be maintained The patient should not be advised that it will be necessary for him to change his whole way of living Nothing need be further from the truth, since 76% of the patients studied in the Cleveland Work Classification Clinic return to the same vocational and occupational classification

The physician should create an atmosphere to encourage the patient to talk, think, and act constructively about his illness and to participate actively in his own rehabilitation The period of passivity, which is frequently required in the treatment of myocardial infarction and rheumatic disease, should be terminated as soon as possible For the patient with coronary and hypertensive disease, enforced passivity is especially harmful, being the antithesis of his aggressive and dynamic personality

After the initial impact subsides, the attending physician should explain to the patient that he has had a heart attack, which consists essentially of a period of temporary deprivation of blood supply to an area of the heart The concept of collateral circulation and the process of muscle healing should be discussed The rationale of temporary restriction of physical activity should be explained, and the great capacity of the heart to recover should be stressed Articles dealing with the successful readjustment of other patients to their heart disease should be made available If the patient has rheumatic heart disease, the nature of the rheumatic process, the importance and feasibility of controlling streptococcic infection, and rheumatic recurrences should be dealt with If hypertension exists, the beneficial effects of rest periods, weight loss, sedation, tranquillity, and happiness should be considered

Hospital Convalescence—During the period of convalescence, which usually starts from the third to fifth day after hospital admission and ends approximately after three to four weeks in the hospital, the management of the patient differs from that of medical care which predominated during the first few days Here the team is organized, and the team approach should be put into action

Restrictions should be reasonable and individualized For the first several weeks the cardiac patient should be protected against communication with disturbing visitors, business associates, and relatives Business worries should be excluded or minimized whenever possible The patient should not be allowed free access to a telephone or allowed to conduct his business from the hospital bed Exception to these rules may be advisable, however A few minutes of discussion with an employer or a business associate may alleviate the patient's anxieties The use of tobacco and sexual intercourse should be forbidden during the first four to six weeks of the illness

Rest and Activity—The prescription for bed rest should be individualized, and bedfast invalidism should not be created More complete bed rest and quiet may be required for the first three to four days for the patient with myocardial infarction than for the patient with acute rheumatic disease or the hypertensive patient with congestive heart failure The patient should be in a comfortable position The period of passivity should be as brief as possible He should be encouraged not to lie motionless but to move actively from one side to another If seriously ill, he may require assistance He should be allowed to feed himself unless such exertion produces symptoms

Exertion in the form of graded exercise, such as flexing of the extremities, deep breathing, shaving, physiotherapy or occupational therapy, should be advised Details of the bedside chair treatment and early ambulation have been presented elsewhere by others Regardless of when the patient's activity is increased, the normalcy of the ill-effects of bed rest and the reaction of patients to exertion (tachycardia, slight dizziness, weakness, and anxiety) should be explained

During the convalescent period the full impact of the illness on the patient often becomes suddenly apparent Psychiatric effects of heart disease may suddenly appear in the form of anxiety, depression with anxiety, regression, paranoia, hypochondriasis, dependency, or denial of illness Throughout the illness the emotional status of the patient should be continually reevaluated The patient may conceive of himself as being more invalided than he really is These misconceptions should be sought out and corrected Usually superficial psychotherapy by the private physician suffices, but in approximately 10% of the cases psychiatric consultation may be required

The social worker may play an important role at this time for patients in all economic strata by helping the patient to use community facilities and to delineate the nature of the economic and family pressures If a patient's wife is young and if it is necessary for her to seek gainful employment, provision may be required for the children to be cared for and for other adjustments in the home to be made.

The rehabilitation of a patient with heart disease may be modified by associated diseases, such as diabetes mellitus and renal involvement, and particularly by thromboembolic complications. The details of management and rehabilitation of a patient with thromboembolism and especially hemiplegia have been summarized elsewhere. The outlook of the hemiplegic patient is by no means as hopeless as previously believed.[5] The majority of such patients can achieve self-sufficiency in the activities of daily living, and many can be selectively placed in jobs.

Convalescence at Home

The period of convalescence at home is variable in its duration and often is difficult to define. During this period, the ultimate goal is to increase the patient's activities gradually and safely. At the present time, the physician usually errs in the direction of excessive restriction and limitation.

Diet.—During the convalescence at home, dietary restrictions should be lightened, whenever possible, to a point that is bearable. The diet should be reasonable and practical and therapeutically indicated. Severe restriction of salt or truly low-fat, low-cholesterol diets should not be prescribed without proper therapeutic indications. Only patients with a demonstrated disturbance of cholesterol balance and fat metabolism should require such stringent diets. Unless there is a specific indication, mass prescription of restrictive, unpalatable diets is not advisable. The inability to follow such diets often produce considerable anxiety in the average cooperative patient. Actually, this anxiety may aggravate cardiac symptoms, thus interfering with the work adjustment period.

Removal of Restrictions.—An increase of activity allows more privileges and a methodical withdrawal of restraints. A positive attitude should be presented to the patient as to what is allowed rather than what is denied. A reasonable program would gradually allow the patient to eat more than one meal with his family and to extend his bathroom privileges and freedom about the home. The physician should encourage the patient to go up and down one flight of stairs once a day for a few days and then several times thereafter, at first slowly and later at a normal pace.

The beneficial effects of exercise upon the development of intercoronary collateral circulation has been experimentally demonstrated by Eckstein[6] and substantiated by clinical observation of the lower morbidity and lower mortality of physically active patients with coronary disease than those who are inactive.[7] After two or more weeks, short walks in the confines of the patient's home and yard, short diversional automobile rides, and later the driving of a car should be permitted. The patient should be allowed to increase his activities to the point of slight discomfort. The desire to return to the world of work should be nurtured by increasing the number of contacts with the outside world and helping the patient formulate work plans.

The restrictions on tobacco and physical activity, including sexual, should be lifted according to the individual case. The categorical denial of tobacco to all patients must be condemned vigorously, especially in patients to whom occasional moderate use of tobacco has significance. Most patients with heart disease can smoke moderately without apparent harm. Restriction of tobacco is probably warranted only if a patient is shown to have a sensitivity to nicotine and if significant peripheral vascular disease is present.

Evaluation of Fitness.—The fitness of the patient is reflected in his reaction to increased activity. It is important to recall the easy fatigability of a normal person who has been restricted to bed. There is a need for a dynamic approach in the evaluation of cardiovascular function. A profile of cardiac function is required in order to detect various types of failure of the circulation, i. e., blood pressure regulation, coronary circulation, myocardial failure, and failure of cardiac mechanism.

Measurement of Cardiac Reserve

During the convalescence at home and the work adjustment period the physician is faced with the need to evaluate the patient's cardiovascular functional status. A careful medical history is the principal clinical criterion of cardiac reserve, but its usefulness is limited by its subjectivity. Simple objective criteria are available today to judge a patient's recovery and his readiness for work. A patient's ability to perform ordinary home activities without dyspnea, angina, or other symptoms should be related to the energy cost of the whole range of physical exertion of humans. Measurements of the energy cost of many activities of humans have been made and are readily available. An excellent report was recently published by Passmore and Durnin[8] to which many references will be made. The physician today must be aware of ergometry and ergonomics, i. e., processes for dealing with the measurement of the energy requirements of activity of humans. This is especially important in the case of the cardiac patient whose energy capacity may be impaired by the basic heart disease.

The energy cost of such basal activity as sitting or lying is approximately 1.25 calories per minute. The calorie equivalent of oxygen is 4.8 to 5.0 calories per liter, i. e., one liter of oxygen consumed equals 4.8 to 5.0 calories of heat production. Skilled athletes using large muscle masses at maximal exertion (running, skiing) can increase their energy expenditure to a maximum of 26.5 calories per minute, while the maximal output for untrained men is about 14 calories per minute.[8]

Muller and Franz[9] estimate that the endurance limit of regular daily work for normal subjects averages 5 calories per minute, but the majority of modern industrial jobs require average energy expenditure of half that rate or less. A patient convalescing from acute heart failure or a myocardial infarct who is able to wash, shave, and dress (approximately 3 calories per minute) and walk around the block (6.6 calories per minute) is in all probability expending as much energy at home as he would at work. Recognition on the part of the physician of the relatively high energy cost of such simple ordinary activities will enable him to advise the patient to resume work without a fear of overtaxing the patient's heart.

An even more objective estimate of cardiac reserve may be obtained from the familiar Master two-step test. Recent studies in our laboratory have confirmed the sound physiological basis of this test, which imposes the same caloric work load on subjects of various ages and weights.[10] These studies also emphasize that by observing the recovery rate of pulse and blood pressure as well as the usual electrocardiographic changes the physician can obtain a more detailed profile of the patient's response to exercise. Pulse and blood pressure should both return to within 10 points of resting level by two minutes after exercise. If the patient can perform the exercise without symptoms, an abnormal pulse rate or blood pressure, or electrocardiographic changes, it is safe to recommend that he undertake most types of industrial employment. If abnormal responses are noted, he still may be able to perform an average job, since the step test requires an energy output of 8.5 calories per minute, which is much greater than the average demand of representative jobs and considerably greater than the peak demands of these jobs (see table).[11]

Energy Expenditures, in Calories per Minute, During Typical Working Day for Thirty-six Persons with Heart Disease

Category	Av	Peak
Less than 1		
Electronics tester	0.70	0.98
1-1.5		
Laundry crib supervisor	1.25	1.47
Maintenance electrician	1.26	2.87
Gauge setter	1.28	1.80
Tool crib attendant	1.40	2.68
Painter	1.41	2.07
Foreman	1.46	2.35
1.5-2		
Planning clerk	1.68	2.01
Supervisor	1.71	2.22
Boxmaker	1.74	2.17
Drill press operator	1.77	2.02
Foreman	1.78	4.04
Plant guard	1.82	4.12
Tool grinder	1.84	2.23
Shift foreman	1.85	2.58
Light assembler	1.88	2.40
Inspector	1.92	3.77
Assembler	1.96	2.49
Light assembler	1.98	2.92
Stock picker	1.99	3.34
2-2.5		
Stock picker	2.00	2.62
Set up burnishing press worker	2.04	2.25
Stub lathe operator	2.07	2.74
Millwright (maintenance)	2.15	2.63
Stamper	2.16	4.31
Maintenance supervisor	2.18	3.77
Scarfing machine operator	2.26	3.26
Drill press operator	2.27	2.93
Turret lathe operator	2.28	2.78
Matron	2.36	4.11
Clutch tester	2.40	2.52
2.5-3		
Welder	2.60	4.47
Supervisor	2.67	3.22
Janitor	2.69	4.29
Fireman (boiler)	2.75	0.72
Over 3		
Stock picker	3.05	4.39

An integrated picture of the patient's recovery and improving cardiac reserve can thus be obtained by any physician during the period of convalescence. A careful history and therapeutic and functional classification employing the New York Heart Association criteria become more meaningful in the light of energy expenditure data, since there is an agreement in over 75% of the cases between this therapeutic and functional classification and the fitness as determined by physiological testing.[12]

Jones[13] writes that Class 1 cardiac patients can do 4.0 to 6.6 calories of work per minute, class 2, 2.7 to 4.0 calories per minute, and class 3, 2.7 calories per minute or less. The usual laboratory criteria used to note the recovery from an acute cardiac illness, such as temperature, erythrocytic sedimentation rate, transaminase levels, and electrocardiogram, provide further guideposts. Finally, the response of the blood pressure, pulse rate, and electrocardiogram to the measured stress of the Master two step test provides a scientific estimate of cardiac reserve.

Work Adjustment Phase

The decision that the patient may return to work initiates a new and critical phase of rehabilitation. In the absence of work classification units or rehabilitation services, the principles of a multidisciplinary approach can nevertheless be employed successfully by the private physician in most communities. Ideally a team should be used, consisting essentially of the private physician, industrial physician, employer (personnel manager or foreman), vocational counselor, and social worker. These individuals are united in an effort to match the patient's total capacity with the demands of the specific job.

Industrial job evaluation considers four aspects: (1) skill, (2) effort, (3) working conditions, and (4) responsibility. To the cardiac patient, effort and working conditions are of primary significance, although emotional factors, which include reaction to responsibility, are also important.

The effort required by a great many of the possible occupations in America nowadays is surprisingly small and not significantly greater than that required by ordinary home activities. Little wonder that many cardiac patients prefer to work than to remain at home. Reference has been made to the growing body of information available regarding the energy costs of various activities.[8] Our experience with 1,100 patients of the Work Classification Clinic of the Cleveland Area Heart Society and our current on-the-job studies[11] confirm the fact that actually cardiac patients, observed under actual working conditions and followed clinically over six years, are working at a wide variety of jobs without evidence of undue physiological stress.

A specific job description should be obtained by the vocational counselor and confirmed by the personnel manager or other representatives of the employer. The concept of the standard job is of no use, because there are so many variations in the requirements of the same job in a plant or in different plants in the same industry. The pattern of energy expenditure is apt to be more important than the magnitude. The frequency of rest periods, pauses, and relief of boredom are important factors. Our comparative studies of normal subjects and cardiac patients show that the same job performed by men of the same age and same skill require approximately the same energy Energy expenditures vary more on the basis of personality needs of the worker than on the basis of energy requirements of the job

Often a simple adjustment or job modification can be made in order to eliminate a single peak energy load which would make the job otherwise impossible For example, a fellow-worker might tighten a lathe chuck or lift heavy parts in place for the worker with cardiac disease A brief conference with the employer or union steward may make it possible for a relatively simple change in working conditions to be made which would make a job more suitable

Observations of cardiac patients at work[11] demonstrate that in many jobs walking constitutes much the heaviest and most sustained exertion and that a rough estimate of the total energy requirements of a job may be obtained from the amount of walking involved The estimation of the total energy requirements must include the energy expended in extracurricular activities, in travel to and from work, and the total work energy requirements of the job itself

Fatigue

Fatigue is a problem which is just being defined at present, and no good measurement of it is available Studies to date, however, indicate that the psychological factors are predominant over simple energy expenditure, particularly at the level of exertion which might be considered for a worker with a cardiac condition

Working conditions, in the sense of physical environment, may be of great importance in individual cases A given energy expenditure will be much more stressful to the cardiovascular system under conditions of excessive heat than under normal conditions Fortunately, however, heat and humidity control are being applied throughout all industry, including the proverbially inclement steel industry Modern industrial physicians no longer think primarily in terms of "cardiac jobs" It is becoming increasingly evident that all but jobs requiring severe physical exertion (over 6 calories per minute) may be, or may be easily made, suitable for the majority of cardiac patients

The emotional milieu of the job may be more important than its energy requirements to the patient with angina or other conditions with recognized emotional facets Here the social worker may play a key role in recognizing the importance of the status of the job and the stress imposed by an overdemanding employer, by the pressure of competition in a piecework job, or by the patient's having accepted responsibility for which he feels unfit Although the influence of the economic and family pressures generated at home may prevail during the working hours, more commonly the opposite pertains, viz, many patients have their attacks of angina only at home and not at work It should be emphasized, however, that in almost all cases the satisfaction, restoration of self-respect, and relief of financial worry, which are the result of the return to work, outweigh any detrimental emotional stress associated with a job A suitable job thus must provide status, self-esteem, and remuneration and be within the patient's present and future capacity

After the emotional and physical factors are considered, the patient often cannot be returned to his previous occupation This occurred in 24% of the cardiac patients studied in the Cleveland Work Classification Clinic If job modification cannot be effected on a local level or selective placement obtained, the private physician may be forced to enlist the help of other disciplines, particularly vocational counseling and testing services and rehabilitation and placement services

Comment

The physician today finds himself burdened with cares which seem far removed from the "pure" domain of scientific medicine Indeed it is fortunate that the cardiovascular capacity of the cardiac patient is so great and the energy requirements of industry so low that the physician does not have a greater percentage of patients who require the multidisciplinary approach In approximately 42 cities in the United States today there are special work classification clinics, which relieve the private physician of these responsibilities in difficult cases These clinics, supported by the American Heart Association, have proved their value in demonstrating that a person with heart disease can work safely in a variety of jobs

We have already referred to our experience in the Cleveland Work Classification Clinic with 1,100 patients in the past six years The team approach, with the team consisting of the medical social worker, vocational counselor, and cardiologist, has been employed successfully Workers with representative heart disease have been studied, and results of the studies have fortified many of the concepts presented earlier From the complexity of the needs of patients with heart disease, which include vocational guidance, vocational rehabilitation, physical rehabilitation, interpretation, and reassurance, it would seem that the nonintegrated approach would be unsuccessful in most of the above-mentioned cases and that the final management of the majority of such cases by one physician alone would have been inadequate As mentioned before, the emotional problems are important In 46% of the cases, the emotional impact of the illness on the patient was more important than the organic heart *disease itself*

Follow-up studies have confirmed the practical value of selective placement of cardiac patients in industry There have been no medicolegal compensation cases involved in the employment of such patients There has been no evidence that employment has aggravated the underlying heart disease In the experience of several work classification clinics, 70 to 75% of the cardiac patients have improved or remained unchanged while working Follow-up studies have revealed that of the original group who were unemployed at the time of the first visit 60% were subsequently employed The clinic team approach has enabled persons with heart disease to return to the status of wage earners, to gain selective placement, to obtain new jobs, to work safely in a variety of occupations and industries, and to adjust more satisfactorily to their heart disease

Summary

The factors important in the rehabilitation of the patient with heart disease include (1) nature and course of heart disease, (2) emotional reaction, (3) iatrogenic disability, (4) vocational features, and (5) presence of other diseases In the management of such a patient, the need to prevent iatrogenic disability and cardiac neurosis and to expedite physical and emotional rehabilitation is important Measurement of the patient's functional capacity in physiological and ergonomic terms is valuable in the regulation of the rate of rehabilitation and in matching the patient's capacity with the demands of specific jobs

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PROBLEMS OF RETAINED AND RECURRENT COMMON BILE DUCT STONES

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• *A series of 1,381 initial biliary tract operations for calculous disease has been analyzed with respect to stones that escape detection during operation or form de novo after operation The two kinds are often indistinguishable, and both are referred to as "retained stone" After 224 cholecystectomies with choledocholithotomy there were 14 cases of retained stone, after 1,156 cholecystectomies without choledochotomy there were only 9 cases of retained stone Once the diagnosis of retained stone is established with reasonable certainty, reexploration is generally indicated In this series, 22 patients underwent a second operation and four underwent a third The unfortunate occurrence of retained stone is thus more frequently encountered after previous choledocholithotomy and the presence of a biliary duct stone indicates a possible source of serious difficulty*

Although the problem of retained and recurrent stones in the common bile duct has received considerable attention over the years and although many excellent studies have been reported by Johnston, Waugh, and Good,[1] Glenn,[2] Buxton and Burk,[3] Cole,[4] Paine and Firme,[5] McKittrick and Wilson,[6] and others, the management of these difficult cases still poses a serious problem to the individual surgeon when he is faced with evidence of continued abnormality within the common duct after surgery on the biliary tract

The decision as to whether a stone detected in the biliary ducts after surgery is retained or recurrent is in some cases an arbitrary one Of the 24 patients in this study, in 15 the stones were definitely retained, and in 4 they were felt to be recurrent on the basis of long symptomatic intervals involved, the type of stones in the remaining 5 could not be determined with any degree of certainty Consequently, in the interest of simplification, no effort is made in the following report, except in certain instances, to continue the distinction between retained and recurrent stones, and thus they will be loosely referred to as "retained"

The reported incidences of gallbladder and biliary duct stones in the population at large are somewhat variable On the basis of 16,936 autopsies of individuals of all ages, performed at the Mayo Clinic between 1910 and 1942, Robertson and Dochat[7] reported a 16 3% incidence of gallstones, 12 6% of 10,587 men and 22 6% of 6,349 women had gallstones Glenn[2a] states that a safe estimate of the incidence of gallstones would be at least 10% for the general population of the United States and 20% for the population over the age of 40 years Stones in the gallbladder,

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Read in the Panel Discussion on Common Duct Stones before the Section on Surgery, General and Abdominal, at the 105th Annual Meeting of the American Medical Association, Chicago June 14 1956 increase in incidence with the passage of years, showing a considerable rise in the 35-to-55-year group Robertson and Dochat [illegible] found that 22 3% of women and 9 7% of men in the fourth decade had gallstones In persons over the age of 55, the increase progresses less sharply, but it is estimated that one out of three individuals will have gallstones at the age of 75 The incidence of common duct stones also increases with advancing age, and autopsy records indicate that one-third to one-half of individuals over the age of 80 years with cholelithiasis will be found to have biliary duct stones Such stones are infrequent, however, in individuals under 40 years of age

After common duct exploration, with or without removal of stones, the incidence of retained stone has been reported by various authors to vary from 3 to 10%[8] Few reports have appeared concerning the incidence of retained or overlooked stones after negative common duct explorations Buxton and Burk[3] noted retained stones by postoperative cholangiograms in 9 (4%) of 249 persons who underwent negative choledochotomies, in 3 of these patients (1 2%), the stones were later removed surgically Glenn[2b] performed follow-up studies of 3 to 18 years on a group of 100 patients who had cholecystectomy and choledochotomy No stones had been found on primary exploration in 46 of these patients, but calculi were recovered from the biliary ducts in 2 of these 46 (4 2%) on reexploration

TABLE 1 —*Incidence of Retained Stones After 1,381 Biliary Operations*

First Operation	Total Patients No	Patients with Retained Stones No	Patients with Retained Stones %
Cholecystectomy	1 156	9*	0 8
Cholecystectomy with choledochotomy	224	14†	
Choledochotomy only	1	1	6 7
Total	1 381	24	1 7

* Found in one patient at autopsy

† Second operation not yet performed on one patient Diagnosis by cholangiogram

The incidence of retained stones after choledocholithotomy has been reported by various authors to vary from 5 8 to 28% (table 8, below) As will be discussed more fully below, it would appear that the incidence of retained stones after choledocholithotomy performed by experienced surgeons would approximate 8 to 9%

Finally, it is of interest that the incidence of retained stones or of stones discovered in the biliary ducts after cholecystectomy without biliary duct exploration is surprisingly low Glenn[2b] followed up 100 consecutive patients who had had cholecystectomy more than 10 years prior to his study Seven of these had symptoms leading to common duct exploration, and stones were found in four Thus, an accurate incidence of 4% of retained stones after cholecystectomy is given

Case Material

Initial Operations—A total of 1,381 initial biliary tract operations for calculous disease has been reviewed (table 1) These cases are collected from the records of three hospitals the Wadsworth General Hospital, Veterans Administration Center, Los Angeles, the Los Angeles County Harbor General Hospital, Torrance, and the University of California Hospital, Los Angeles, for the period from Jan 1, 1947, to March 1, 1956, inclusive

TABLE 2 —*Incidence of Retained Stones After Choledochotomy With and Without Removal of Stone*

	Total Patients No	Total Patients %	Patients with Retained Stone No	Patients with Retained Stone %
Stone removed	123	55	14	11 0
No stone found	102	45	1*	0 95
Total	225		15	

* It is not known whether the stone is retained or recurrent in this case

The various incidences of retained stones in this study are inaccurate because of certain inadequacies of follow-up Some patients have not been followed up for a long time, especially those who have undergone second and third operations, and others have been lost to follow-up Furthermore, an undetermined number with retained stone undoubtedly went elsewhere for their second operation The group of six patients with retained stones in the University Hospital, however, were of this itinerant nature, having had their first operation performed at hospitals other than one of the three included in this study Thus, to an undetermined extent, this elusive factor would tend to be balanced

Except in the University Hospital, the bulk of the operations were performed by surgical residents Twenty-four instances of retained (and recurrent) stones occurring subsequent to the first biliary operation were found, representing 1 7% of the total Nine of the 24 followed 1,156 cholecystectomies (0 8%) and 15 followed 225 common duct explorations, associated with cholecystectomy in all but one case, an incidence of 6 7% (table 1) Of the total of 225 patients who underwent choledochotomy, 123 (55%) had stones removed and in 102 (45%) no stones were found (table 2) There were 15 instances of retained stones after cholodochotomy 14 after previous choledocholithotomy (11%) and one after negative common duct exploration (0 98%)

TABLE 3 —*Incidence of Retained Stones After Second Operation*

Second Operation Type	No Patients	Patients with Retained Stones After Second Operation No	Patients with Retained Stones After Second Operation %
Choledochotomy	20*	5†	25
Choledochotomy with choledochoduodenostomy	1	0	0
Choledochotomy with choledochoplasty	1	1‡	(100)
Total	22	6	27.2

* In 9 of these patients initial operation was cholecystectomy

† Retained stones found at autopsy in 2 patients

‡ Stricture present possibly due to stone

Of the 24 patients with retained stones, 12 were female and 12 male With the group of 10 males at the Veterans Administration Hospital excluded, there were 12 females and 2 males The age of the 24 patients varied from 26 to 76 years, with a median age of 62

Second Operations—As shown in table 3, a second operation, consisting of common duct exploration, was performed on 22 of the 24 patients with retained stones Retained stones were diagnosed by autopsy in one of the other two patients and by a postoperative cholangiogram in the other, who has not yet undergone a repeat operation Common duct exploration was repeated in 13 of the 22 patients undergoing repeat operation In the remaining nine patients, however, the initial operation was cholecystectomy, hence, common duct exploration, the second procedure, was performed for the first time In addition to common duct exploration, one patient had a cholecystoduodenostomy and another a choledochoplasty

Third Operation—Twice-retained stones occurred in six patients, or 27 2% of those requiring a second operation In two of the six patients the stones were found at autopsy, while four patients underwent a third operation (table 4) Of these four patients, all are progressing well except one (case 1), who had multiple intrahepatic stones and in whom an operative cholangiogram indicated possible further retained stones In another the gallbladder was removed at the third common duct exploration

A total of 26 second and third operations were thus necessary in the 24 patients with retained or recurrent stones, and one patient may require a fourth operation The operation performed was common duct exploration in all instances This was combined with choledochoduodenostomy in one case with choledochoplasty in two, and with cholecystectomy in one Because of the recurrent status of some of the stones for which second and third operations were necessary, the incidences of true retained stones are altered This factor is analyzed in greater detail in the Comment below

Cholangiography

Operative Cholangiography—Operative cholangiography was used in only three instances in connection with the 24 patients of this series Its use in the total of 225 common duct explorations has not been determined Although not yet a routine procedure, it has been performed with increasing frequency within the last two to three years covered by this study, but not sufficiently to be evaluated in this report

TABLE 4—*Patients upon Whom Three Operative Procedures Were Performed Because of Retained Stones*

Case No	Operation 1st	 2nd	 3rd
1	Cholecystectomy	Choledochotomy	Choledochotomy
2	Cholecystectomy	Choledochotomy	Choledochotomy
3	Cholecystectomy	Choledochoplasty (stricture possibly due to stone)	Choledochoplasty (stricture due to stone)
4	Choledochotomy	Choledochotomy	Choledochotomy and cholecystectomy

* This patient may require still another choledochotomy

Postoperative Cholangiography—Cholangiography was performed postoperatively, with use of the inlying T tube, in 29 instances (table 5) It was performed after initial common duct exploration in 12 patients, definite evidence of obstruction by retained stones was seen in 9 of them and dilated ducts in 2, and only one was reported as normal The presence of retained stones was verified by common duct exploration in 11 and by autopsy in one After a second common duct exploration, cholangiography was done in 15 patients, obstruction by stone was revealed in 2 and dilated biliary ducts in 3, and a normal reading was obtained in 10 The presence of retained stones was verified by subsequent common duct exploration in the two patients showing obstruction, and, at autopsy, two years later, stones were revealed in one of the patients with dilatation of the ducts No further operations have been performed on the remaining two patients with dilated ducts or the 10 with normal cholangiographic findings Two cholangiograms made after a third common duct exploration were read as normal These data help to confirm the established value of the postoperative cholangiogram in the management of biliary stones

TABLE 5—*Relation of Findings on Postoperative Cholangiography and Subsequent Choledochotomy*

Previous Operation	Patients No	Findings Obstruction	 Dilated Ducts	 Normal	Stone Verified by Choledochotomy
First	12	9	2	1	12*
Second	15	2	3	10	3*
Third	2	0	0	2	0
Total	29	11		13	15

* Stone verified in one case by autopsy

Intravenous Cholangiography—Intravenous cholangiography was utilized eight times Findings were normal in two patients Stones were visualized in three patients and later identified by operation in two (one patient has not yet had a second operation) Retained stones were likewise later positively identified in one patient in whom there was nonvisualization of the ducts and in two patients with dilated biliary ducts but in whom no stones were seen on cholangiography These data are meager and only support the observations by others that intravenous cholangiography, because of the effects of altered hepatic function and difficulty in visualizing the distal common duct, cannot positively indicate the absence of stones [9]

Biliary Fistula

In this series, persistent biliary fistula occurred three times In one patient, a calculus was demonstrated at the ampulla of Vater by cholangiogram two weeks postoperatively the T-tube was removed after three weeks, and a biliary fistula persisted until the stone was removed by a second common duct exploration two months later In the second patient, fistula occurred two months after choledocholithotomy and two incisions and drainages of subhepatic abscesses A small stone at the ampulla of Vater and many in the hepatic ducts were removed one month later, or three months after the initial operation The third patient developed a biliary fistula after cholecystectomy Stones were passed through this fistula for two and one-half years, and then it healed After four years several stones were removed from the cystic duct stump and from the common duct This case supports the observation by Hicken and co-workers[10] that some biliary fistulas eventually heal even in the presence of retained calculi

Biliary Flush

Best's technique of biliary flush[11] was tried in four instances in an effort to remove stones definitely identified by cholangiogram In no instance was it successful, all stones being removed eventually by choledocholithotomy

TABLE 6 —*Incidence in Other Series of Retained Stones After Choledocholithotomy*

Source	Period	Patients Undergoing Choledocholithotomy Total No	Patients with Retained Stone No	%
McKittrick and Wilson[6]	1949	52	3	5 8
Buxton and Burk[8]	1934 1946	190	17	8 9
Johnston Waugh and Good[1]	1940-1950	153	12	8 0
Glenn[5]	1932 1950	100*	[illegible]	9 7
Singleton and Coleman[13d]	1950-1955	43	4	9 3
Paine and Firme	1945 1953	206	[illegible]	28 0

* Group with 3 to 18 year follow up

Comment

The data obtained from this study and from those of others shed light on two questions regarding the problem of the retained stone that concern the surgeon performing operations on the biliary tracts 1 Are most retained stones overlooked because the common duct is not explored or are most of these overlooked during exploration? 2 Are the majority of retained stones overlooked during common duct exploration where stones were identified and removed, or are they overlooked and retained during explorations where no stones were found? In answer to the first question, as shown in table 1, the incidence in our study of retained stone was 0 8% after cholecystectomy alone but 6 7% after common duct exploration with or without identification and removal of stones Although these percentages are probably lower than the absolute incidences because of inadequacies in follow-up, the ratio of one to the other is probably fairly accurate In answer to the second question, in our series retained stones were found after choledocholithotomy in 11% and after common duct explorations where stones were not found in only 1%

These data indicate that, if the surgeon explores biliary ducts, adhering to the accepted indications (palpable stone, dilated duct, thickened wall of the duct, gallbladder with small stones and large cystic duct, and a history of jaundice with pain), his chances of leaving stones in the unexplored duct after cholecystectomy alone are gratifyingly low The incidence in our series of stones found in explored ducts is 55%, and in other published reports the incidence varies from 33% to 69%, with a rough average of around 50%

These and other published data show that most stones are retained after choledocholithotomy, a clinically significant fact in that an individual harboring stones in his biliary ducts possesses a source of potentially serious difficulty Operative experience and awareness of the problem presented by biliary duct stones would appear to affect significantly the incidence of retained stone after choledocholithotomy performed by any individual or group of surgeons, to some extent this is reflected in the published literature (table 6)

Neither our data nor those published in the literature, which is scant in this regard, allow the formulation of any sort of rule-of-thumb estimate as to how many patients undergoing a second operation for retained stones will require a third exploration for twice-retained stones Our series (table 3) reveals that 6 of 22 patients, or 27 2%, still had retained stones after second operative procedures Three of the 22 patients were operated on for recurrent stones and 5 for possible recurrent stones, hence, the corrected percentage of second operations for true retained stones would be 14% Six patients still harbor stones in the common ducts after two previous operative procedures, in three of these patients stones were retained after attempted removal of probably recurrent stones and in three the stones were truly twice-retained As the retained stones in two of the six patients were found at autopsy after death from unrelated causes, a third operation was necessary in only four (table 4) In this group of four, one patient, who originally had cholecystectomy alone, followed by two common duct explorations for large numbers of extrahepatic and intrahepatic stones in each instance, still has indications of thrice-retained stones, and a fourth operative procedure may be necessary in the future These cases illustrate that it may be very difficult to rid a small percentage of patients of all biliary stones and emphasize the importance of the problem presented by intrahepatic stones Norman[12] found that, of 46 patients with verified hepatic calculi, 31 also had stones in the intrahepatic ducts It was impossible in 18 patients (in 14 of whom the stones were definitely intrahepatic) to remove all the hepatic stones visualized in cholangiograms made at operations As a result, choledochotomy was repeated in 7 patients, and, finally, in 26 of the 46 patients, calculi were left in spite of choledochotomy In his thorough study, Norman points out the value of operative cholangiography performed both before and after the duct is opened and stresses the importance of radiographic technique utilizing exposure of the plates at various angles in order to avoid superimposition of intrahepatic ducts on one another

TABLE 7 —*Type of Stones Detected After Biliary Surgery*

Initial Operation	Patients No	No of Patients with Retained Stones	Recurrent Stones	Stones of Undetermined Status
Cholecystectomy	9	4	3	2
Cholecystectomy and choledochotomy	15	11	1	3
	24	15	4	5

The surgeon is also concerned with knowing how soon a retained stone will make itself evident if overlooked at the time of common duct exploration Retained stones in 15 of the 24 patients in this series showed definite evidence of their retention early in the postoperative period Three of the 15 patients had persistent biliary fistulas, in 10, obstruction of the duct by calculi was demonstrated by postoperative cholangiogram, and in 6 significant symptoms were present postoperatively

It is of interest that more stones that were believed to be recurrent were found after cholecystectomy alone than after cholecystectomy with common duct exploration (table 7)

This study confirms the value of the postoperative cholangiogram, which was performed in 29 instances (table 5) Obstruction was found in 11 instances and dilated ducts in 5, the presence of stones was subsequently verified by operation or autopsy in 15 of these 16 cases The diagnostic accuracy of the postoperative cholangiogram, as indicated in this and in numerous other studies, is sufficient to indicate the advisability of using the T-tube after each common duct exploration for stone Furthermore, the T-tube should not be removed until cholangiography has been done and the most accurate knowledge possible has been gained concerning the patency of the common duct

- The surgeon is also interested in knowing whether a retained stone should be immediately removed surgically or whether and to what extent watchful waiting or nonoperative methods, such as biliary flush, will result in passage of the calculus Johnston, Waugh, and Good[1] saw 12 patients with residual common duct stones, diagnosed by postoperative cholangiograms in 11 and by symptoms in one, and found a second operation to be necessary in only 6 Evidence of stone subsided in five, and the remaining patient died and did not come to autopsy The data in our series are inadequate to indicate definite answers to these questions Twenty-two of our 24 patients with retained stones eventually had stones removed at a second operation, retained stone was diagnosed at autopsy in one of the remaining 2, and in the other a second operation has not yet been carried out In 9 of the 22 patients the interval before the second operation was from 18 months to 33 years, and during these periods these patients experienced asymptomatic intervals, some of many months' duration Difficulties related to the biliary tract continued to reappear, however, until all stones were removed These results suggest that, once the diagnosis of retained or recurrent common duct stone is established with reasonable certainty, common duct exploration without delay is generally indicated

Although our use of Best s method of biliary flush[11] was unsuccessful in the four instances in which it was tried, other authors[13] had had varying degrees of success with his method and with that of Pribram[13c] Glenn[2a] states that he has abandoned the use of the latter method because of reactions and delayed cholangitis that followed the use of the solvents advocated Singleton and Coleman[13f] recently reported that 'most authorities have found no harmful effects" from the use of chloroform and ether and point out the importance of agitating the stone by irrigation to effect its dissolution It would appear that success with these methods depends in large part upon the degree of patience exerted by the user and also on the fortitude of the patient and his desire to avoid another operation

Summary

Twenty-four of 1,381 patients had retained or recurrent common duct stones after operations for calculous biliary disease The incidence of retained and recurrent stone after cholecystectomy appears to be 4% or less This percentage is apparently due to the liberal exploration of the common duct by most surgeons, who have adhered to the indications currently recommended The incidence of retained and recurrent stone after all common duct explorations appears to be in the range of 3 to 10%, after negative explorations, it is approximately 4%, but after previous choledocholithotomy by experienced surgeons, the incidence appears to be about 8 to 9% The unfortunate occurrence of retained stone is thus more frequently encountered after previous choledocholithotomy, indicating that the presence of biliary duct stones per se may be the major source of serious difficulty for the patient (and the surgeon)

In our series of 24 patients with retained and recurrent stones, 22 underwent a second operation, 4 underwent a third operative procedure, and one may require a fourth operation, illustrating the difficulty of finally ridding a small percentage of patients of biliary duct stones Due to the fact that operative cholangiography has been employed by us only in the latter part of the period studied, its value cannot be accurately evaluated Use of the postoperative cholangiogram was sufficient to confirm the value of this procedure The T-tube should be used after each choledochotomy and should not be removed until at least one postoperative cholangiogram has been obtained Our study indicates that difficulties related to the biliary tract continued to reappear until all stones were removed surgically Therefore, once the diagnosis of retained or recurrent common duct stones is established with reasonable certainty, reexploration is generally indicated

Dr William C Boeck Jr, of the Los Angeles County Harbor General Hospital, aided in the collection of material for this report

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PRACTICAL VALUE OF OPERATIVE CHOLANGIOGRAPHY

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- *Cholangiography can be performed during operations on the biliary system by injecting the contrast medium through the cystic duct before exploring the common duct or by injecting through the T tube after exploration The film is exposed during a brief period of apnea induced by the anesthesiologist, and while the film is developed the gallbladder can be removed Cholangiograms with sodium acetrizoate as the contrast medium were made in 444 patients The common duct was explored in 231, and calculi were recovered from the ducts in 115 Stones missed on operative exploration were detected by operative cholangiography in 36 patients Postoperative complications have occurred, and both false-positive and false negative results have been noted These difficulties can be reduced by attention to details, and the usefulness of the results has been demonstrated*

It is self-evident that the best way to manage stones within the extrahepatic biliary ducts is to recognize their presence and remove them[1] It is our purpose to discuss the role of operative cholangiography in furthering this objective

The subject of operative cholangiography is a controversial one The controversy revolves around the accuracy of the technique in relation to the alleged disadvantages of its use[2] Certain questions arise Does this additional diagnostic adjunct enhance the thoroughness of an operative exploration of the ducts? Will a more general adoption of this procedure reduce the number of unnecessary common duct explorations? Is the additional inconvenience justified by the results obtained? These are pertinent questions attending the use of this procedure to which our data will be applied

Our observations are drawn from an experience with operative cholangiography in 444 patients In this presentation only certain practical observations derived from the data are presented A more detailed analysis is presented elsewhere[3]

Case Material

Four hundred forty-four patients were subjected to operative cholangiography during the past four years These patients were drawn from the surgical services of the St Louis University Hospitals, more than four-fifths of the procedures were performed by the resident staff In 57%, cholangiography was performed through the cystic duct prior to exploration In 32%, the common duct was explored and contrast medium injected through the T-tube after exploration In 11%, both preexploratory and postexploratory operative cholangiograms were done The common duct was explored in 52% of the 444 patients Calculi were recovered from the ducts in half of the explorations (26%)

Technique

The standardized technique used in this series is diagrammatically illustrated in the figure Certain points may be emphasized Wound drapes should be sutured to the skin, and all radiopaque sponges and instruments must be removed from the right upper quadrant before injection of the agent The absence of bubbles in the system is insured by aspiration of bile into the syringe We have used with satisfaction a 70% aqueous solution of sodium acetrizoate, injected in increments of 5, 5, and 10 ml, with exposure of a film after each injection It is important to inject slowly to avoid raising the intraductal pressure

The need for cooperation between the surgeon, anesthesiologist, and radiologist has often been stressed After injection of the contrast medium, the anesthesiologist induces a state of apnea and instructs the technician to expose the film During the short period while the films are being developed, the gall bladder may be removed With proper teamwork there is minimal prolongation of the operating time

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Indications for Operative Cholangiography

Operative cholangiography may be helpful in two sets of circumstances. First, after either a positive or a negative operative exploration of the common duct, it may serve as additional insurance against retained stones. Second, when the indications for exploration are questionable, the operative cholangiogram may help to solve the surgeon's dilemma. If stones are demonstrated by cholangiography, exploration is mandatory. If the cholangiogram is negative, the surgeon may refrain from opening the duct with greater assurance that stones are not being overlooked.

In this series the reasons for the use of operative cholangiography were as follows. In a small number of patients (17%), the procedure was used to help evaluate the method. In more than four-fifths of the patients, it was felt that operative cholangiography would be a useful adjunct in reducing the incidence of overlooked common duct stones. Thus, operative cholangiography was performed to insure against retained stones in 42% of the patients (after positive exploration in 22% and negative exploration in 20%) and to avoid unnecessary exploration of the duct in 41%.

In certain instances one is compelled to explore the common duct. When there is palpable stone, a dilated or thickened common duct, bile containing particulate matter, or an acalculous gallbladder in the presence of typical biliary colic, as well as in certain types of jaundice, the indications for exploration are clear-cut. However, in selected patients with a history of jaundice or pancreatitis and with no operative evidence of common duct obstruction, the indications for exploration are less clear. Moreover, exploration of the common duct in every patient with multiple small stones in the gallbladder would result in a number of needless explorations. In such instances the surgeon may be undecided whether to open the duct. Under these circumstances, what help may be expected from operative cholangiography? A review of our own experience sheds light on this question.

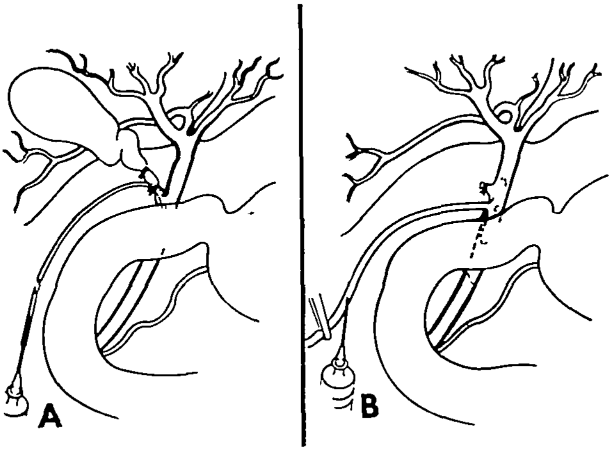
The over-all diagnostic accuracy of the method in these 444 patients was 88%. This relatively high figure is an index of the attention directed to technical precision, which is so important in obtaining satisfactory cholangiograms. In 63 patients (14%) stones were seen on the operative cholangiogram. In 36 of these 63 patients, the common duct had been explored and judged to be free of stones. In these 36 patients, the retained stones lay within the common duct in 24 instances and within the hepatic ducts in 12. In all but two patients (both with hepatic duct calculi), the stones demonstrated on operative cholangiography were removed on immediate reexploration of the duct. In the two patients with stones in the hepatic ducts, repeated efforts at extraction were unsuccessful. Delayed cholangiograms during the postoperative period revealed that the stones in both instances had dropped from the hepatic radicle into the common duct, both were removed at a second operation.

In evaluating the usefulness of this procedure, one must consider whether the additional time, expense, and inconvenience of operative cholangiography in 444 patients was justified in order to remove stones that would otherwise have been retained in 34 patients. Certainly some of these patients would have required a second operation for removal. In those who were spared a second procedure because of operative cholangiography, there is no doubt as to its merit.

In 144 patients with questionable indications for exploration but with no direct evidence at operation of a stone within the duct, the decision against common duct exploration was abetted by a negative operative cholangiogram. Such a decision is always open to question until complete, long-term follow-up establishes its correctness.

Problems Encountered

The method was judged to be unsatisfactory in 12% of the patients in this series. More than half (6.5%) of these poor results were due to errors in technical performance. These errors included poor positioning of the patient, motion during exposure of the film, interposition of opaque objects, extravasation of the contrast medium, and faulty radiographic technique.



Technique used for operative cholangiography, *A*, before exploration and, *B*, after exploration.

The remaining unsatisfactory results were due to errors in interpretation of the films, with 3.5% false-positive and 2% false-negative.

It is useful to review some of the more common reasons why a surgeon may be misled by the cholangiogram into searching for a 'stone' that does not exist. These false positive results are occasioned by incomplete filling of the hepatic ducts, spasm of the ampulla preventing the inflow of contrast medium into the duodenum, and the presence of air within the ducts. Additional sources of error are the end of the polythene catheter or the limbs of the T-tube, which may simulate a stone by pressure against the wall of ducts or when they are viewed on end. Space does not permit a discussion of certain simple precautions that will prevent these errors.

In addition to the false-positive cholangiograms, one may have false-negative results, in which small stones are masked by the contrast agent. This occurred in nine of our patients (2%). In eight instances, the stones measured 5 mm. or less. They were demonstrated by subsequent exploration or delayed cholangiography It is reasonable to conclude that this 2% represents a minimum figure for false-negative results, since certain undetected stones, masked by the contrast medium, undoubtedly later pass into the intestine

As with any technical procedure, certain complications may be anticipated These include a mild, transient low-grade fever during the immediate postoperative period, presumably due to regurgitation of the medium into the blood stream, and a transitory elevation of the serum amylase level, possibly correlated with the not infrequent reflux into the pancreatic duct Some degree of extravasation occurred in 13% without apparent untoward effects

Comment

From the review of our data it is apparent that satisfactory results can be obtained with operative cholangiography by careful attention to certain technical details The widespread use of delayed cholangiography after surgical exploration and T-tube decompression of the common duct indicates that the principle of radiologic confirmation of the absence of stones within the ducts is generally accepted

Those surgeons who employ delayed cholangiography but rarely use operative cholangiography must agree with the principle of operative cholangiography but avoid the procedure because of dissatisfaction due to errors in technique and interpretation With increased care in technical performance, these errors can be reduced and the procedure should come into wider use

Summary

We have performed operative cholangiography in 444 patients subjected to biliary tract surgery, with a diagnostic accuracy of 88% Stones missed on operative exploration were detected by operative cholangiography in 36 patients Reasons for the unsatisfactory results include poor technique and false-negative and false-positive cholangiograms Increased attention to details of technical performance is necessary With the resultant improvement in operative cholangiograms, there should be more widespread use of the method

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DISAPPEARANCE OF "STONE" SHADOWS IN POSTOPERATIVE CHOLANGIOGRAMS

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During the past seven years we have encountered nine patients in the Illinois Research and Educational Hospitals who after cholecystectomy and choledochostomy had residual "stones" in the common duct as determined by cholangiography All except one of these had been operated on in our own hospital Under conservative treatment, consisting of prolonged T-tube drainage and administration of bile salts (3 to 4 Gm per day in divided doses), dissolution, disintegration, or passage of these "stones" was observed in seven of the nine cases We should add that we have no proof that these shadows represent stones, all we can say is that they resemble those cast by stones

• *The possibility that stones in the common bile duct may disappear during conservative treatment with 3 to 4 Gm of bile salts per day by mouth is illustrated by the histories of nine patients selected from a larger series of patients who have undergone cholecystectomy and choledochostomy with insertion of a T tube in the common duct The nine patients constituted a group in whom postoperative cholangiography gave evidence of retained or recurrent stones and in whom obstruction of bile flow was incomplete so that the T-tube could be clamped all the time In seven of these patients, the "stone" shadows vanished in 8 to 13 weeks In two, the shadows persisted, and stones were removed at a subsequent operation Proof that the shadows represented stones and that the administration of bile salts played a decisive part in their disappearance was not absolute, and the question whether the stones disintegrated, dissolved, or passed unchanged was not settled, but significant evidence relating to these problems was obtained*

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Read in the Panel Discussion on Common Duct Stones before the Section on Surgery, General and Abdominal, at the 105th Annual Meeting of the American Medical Association, Chicago, June 14, 1956

Evidence Supporting Theory of Dissolution or Disintegration of Stones

In addition to the clinical data presented herein, we wish to present other evidence supporting the possibility that the stones dissolved or disintegrated. The fact that the "stone" shadows disappeared rapidly rather than by slow decrease in size suggests that the stones disintegrated rather than dissolved, unless they were passed through the sphincter of Oddi. Most of the shadows were so large that it hardly seems possible that the stones could have been passed. Disintegration might take place by dissolution of the outer "hard" portion and of the matrix holding the cholesterol together, in this case, they might crumble and be passed as granular debris. All surgeons have seen many stones so soft that they broke into amorphous fragments as they were removed from the common duct. It is barely possible that a disturbance in the cholesterol-bile salt ratio, as suggested years ago by Andrews,[1] might exert a prominent influence in the "dissolution."

It is a well-known fact that, if gallstones from humans are placed in the gallbladder of a dog, the stones will disappear in a few weeks or months. It is rather obvious that this disappearance is related to dissolution and not to passage through the small cystic duct of the dog. The increased bile salt content in the dog's bile, as reported by Sobotka[2] and others, could readily explain this disappearance by dissolution in the dog.

The great variation in the percentage of common ducts explored, as noted in the literature, offers fairly good evidence that a huge number of stones in the common duct are passed or dissolve. McKittrick and Wilson[3] report the performance of cholecystectomy and choledochostomy in 100 consecutive patients with stones in the gallbladder, with stones found in the common duct in 52%. Cattell[4] reports exploration of the duct in 45.7% of 1,104 patients having cholecystectomy, with stones found in 16.8% of the entire group. On the other hand, Glenn[5] reports opening the common duct in only 10.5% of 2,472 patients having cholecystectomy, with the finding of stones in only 7.2% of the entire group. Recognizing the vast difference in discovery of stones, as listed above, Glenn followed up 100 consecutive patients who had undergone cholecystectomy performed by his group more than 10 years previous to his study. Of these 100 patients, 93 were asymptomatic, 7 had symptoms leading to common duct exploration, but stones were found in only 4 of these. If we add this 4% to Glenn's original figure of 7.2, we obtain a figure of only 11.2%, which is still below Cattell's figure of 16.8%. It appears that the stones were probably present in many of Glenn's patients not having a common duct exploration. If so, they must have been passed or "dissolved."

One might ask the question, why should stones disintegrate in the common duct after cholecystectomy, whereas they grow and perhaps occasionally form in the common duct of patients not having had their gallbladder removed? There may be a possible explanation in the fact that, with the gallbladder in place, a certain amount of concentration of bile takes place, although this is less so in diseased gallbladders. If concentrated bile is expelled from the gallbladder, flowing over stones in the common duct, one might expect growth of the stone and not dissolution, particularly if the diseased gallbladder absorbs bile salts, with disturbance of the bile salt-cholesterol ratio, as claimed by Andrews.[1]

If disintegration of stones does take place in the common duct after cholecystectomy, one would not expect it in patients having complete obstruction of the duct, because the possible effect of dissolution by constant flow would be obliterated. In all seven of our patients in whom there was disappearance of the "stone" shadow we were able to clamp the T-tube constantly, although in two patients jaundice persisted for a prolonged period, in one patient, clamping of the T-tube was associated with leakage of considerable amounts of bile around the T-tube.

Findings in Seven Patients in Whom Stone Shadows Disappeared

	Surgery			No of Wk Postoperatively for Cholangiogram				No of Wk Postoperatively Bile Salt Therapy Begun
Case No	Date	Jaundice	Stones Found in Common Duct	1st	2nd	3rd	4th	
1(fig 1)	6-15-55	No but history	None	4 stone	9 stone	10 stone	2 normal	8
2	6-14 49	Yes	Many	7 stone	1[illegible] stone	21 normal		12
3	1 7 52	Yes	None	11 stone	12 stone	1[illegible] normal		11
4(fig 2)	11 12 54	Yes	2	2 stone	7 stone	11 stone	18 stone (5th study at 31 wk normal)	2
5	1 [illegible]-53	Yes	Yes	2 stone	7 normal	9 normal		2½
6(fig 3)	7 1 54	No but history	Yes	2 stone	5 stone	10 stone	1[illegible] normal	2
7	1 29-54	Yes	None	3 stone	8 normal			2

Analysis of Cases

As stated, during the last seven years we have found "stone" shadows in the postoperative cholangiograms of nine patients in our hospital who have had cholecystectomy and choledochostomy. In seven, the shadows disappeared, but in two, in whom the T-tube was kept in place for a year, the shadows remained, operation was performed on these two patients after this interval, and stones were found in the common duct. We advised operation in one patient at the end of six months, but he declined because of urgent business, in the other patient operation was delayed because the patient was lost to follow-up and did not return. Treatment in all cases was confined to the oral administration of bile salts (3 to 4 Gm per day in divided doses) and constant clamping of the T-tube. We would not attempt this treatment if the duct were completely obstructed.

The table reveals the important data for each patient as related to operation, cholangiograms, and therapy. The history and other clinical findings are given in the case reports, below In all cases the shadow or deformity was demonstrable in more than one film Several cholangiograms in other patients, not reported on, revealed deformities, but in most cases a diagnosis of air bubbles could be made quite readily In two others, the shadows were doubtful and were absent in a subsequent cholangiogram These, too, might have been stones, but we did not include them since there was definite doubt about the identity of the shadows The time required before a normal cholangiogram was secured was 25, 21, 15, 31, 7, 15, and 8 weeks respectively The shadow might have been absent at an earlier date, but we made no attempt to obtain weekly cholangiograms At least we know that the shadow persisted through 16, 12, 12, 18, and 10 weeks, respectively, in five of the seven patients In two of the patients the "stone" shadows were present in four and three different cholangiograms, respectively, spaced three to seven weeks apart

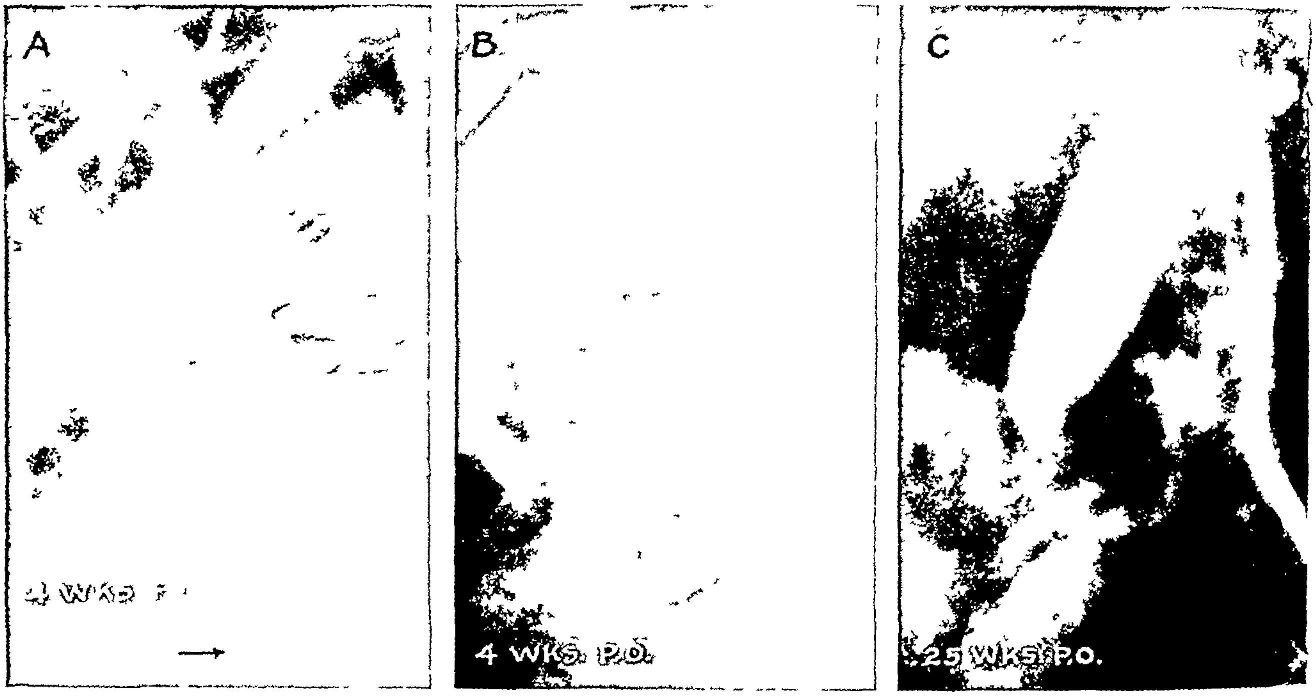

Fig 1 (case 1) —*A* and *B*, different views of cholangiogram (four weeks postoperatively), revealing "stone" at ampulla Later cholangiograms taken 9 and 16 weeks postoperatively (not shown here) confirmed presence of stone but revealed slight decrease in common duct size and better drainage of dye into duodenum *C*, normal cholangiogram, taken 25 weeks after operation

Obviously, we cannot prove that the shadows revealed in the cholangiograms were stones However, since the deformity was present in more than one film in all cases and fulfilled the roentgenographic requirements for stones, we feel the diagnosis of stone was justified Perhaps the most diagnostic shadows are those with irregular shape and surface surrounded completely by iodopyracet (Diodrast) compound A concave shape on the terminal end of the cholangiographic shadow is considered fairly conclusive of stone

Although we gave bile salts (3 to 4 Gm per day in divided doses) to all patients, we have no evidence whatsoever that this drug played a vital role in the disappearance of the shadows However, we are sufficiently convinced of its efficacy that we gave it to all, and we will continue to do so until we have evidence to the contrary It is true that, in two cases, bile salt therapy was short (see last column in the table)

We have additional evidence that all seven patients had stones in the common duct, inasmuch as five had jaundice at the time of operation and two had a history of jaundice It is also very significant that in three of the seven patients no stones were found in the common duct at the time of choledochostomy, two of these three had jaundice at the time of operation and the third had a history of jaundice Because of lack of space the cholangiograms of only three of the patients are reproduced here

Report of Cases

Case 1 —A 56-year-old woman came to the hospital in June, 1955, complaining of recurrent attacks of pain in the right upper quadrant with jaundice However, at the time of admission she did not have jaundice and had not had any pain for two or three weeks She was operated on on June 15, 1955 The gallbladder contained numerous stones and was buried rather deeply in the liver The cystic duct was large in diameter but short The common duct was explored with a common duct scoop, but no stones were found The scoop passed through the sphincter of Oddi without difficulty A cholangiogram, performed while the patient was on the table, revealed no shadows suggestive of stones, iodopyracet entered the duodenum readily Accordingly, it was assumed (probably erroneously) that the stone causing the attacks of jaundice might have passed through the sphincter of Oddi into the duodenum The common duct was closed around a T-tube and the wound closed A postoperative cholangiogram was taken July 12, 1955 (four weeks postoperatively) There was moderate dilatation of the common duct, and a shadow typical of that of a stone was noted at the ampulla of the common duct (fig 1) In spite of the obstruction noted on the x-ray, apparently bile did pass into the duodenum readily, because the T-tube was clamped almost continuously after June 27, 1955 In August, the patient was placed on bile salt therapy, receiving 1 Gm four times a day Cholangiograms taken Aug 19 and Oct 10, 1955, revealed an obstruction similar to the one noted on July 12 However, the cholangiogram taken Dec 6, 1955 (25 weeks postoperatively), revealed no obstruction, and iodopyracet entered the duodenum readily The T-tube was removed Dec 14, 1955 When last seen, six months later, the patient was asymptomatic and had no pain or recurrence of jaundice

CASE 2 —A 48-year-old woman with diabetes was admitted in early June, 1949, complaining primarily of vomiting and slight abdominal distress However, shortly after admission, she developed severe pain in the right upper quadrant and jaundice The icterus index was 18 and the bilirubin level 2 mg per 100 cc On June 14, 1949, she had a cholecystectomy and common duct exploration The gallbladder was inflamed and contained many stones The common duct contained 50 to 75 stones varying from 2 to 5 mm in diameter There were also several stones in the right and left hepatic ducts A lead probe passed readily into the duodenum A cholangiogram performed Aug 10 1949 (seven weeks postoperatively), revealed several small filling defects in the terminal end of the common duct, although the iodopyracet passed readily into the duodenum Another cholangiogram, taken Sept 12 1949, revealed slight narrowing at the distal end of the common duct and a probable partial obstruction, the filling defects were still present, but not so prominently as in the previous film After June 25, the T-tube was clamped most of the time However there appeared to be definite obstruction, because by Sept 30 the patient still had slight jaundice and complained of pruritus, along with alternating cholic and acholic stools On Oct 5 she was placed on therapy with 1 Gm of bile salts four times a day The cholangiogram taken Nov 17, 1949 (21 weeks postoperatively), revealed a widened common duct, but the stone shadows were gone The T-tube was removed early in December, 1949 When last seen, in August, 1955, the patient was well and had had no difficulty since the T-tube had been removed

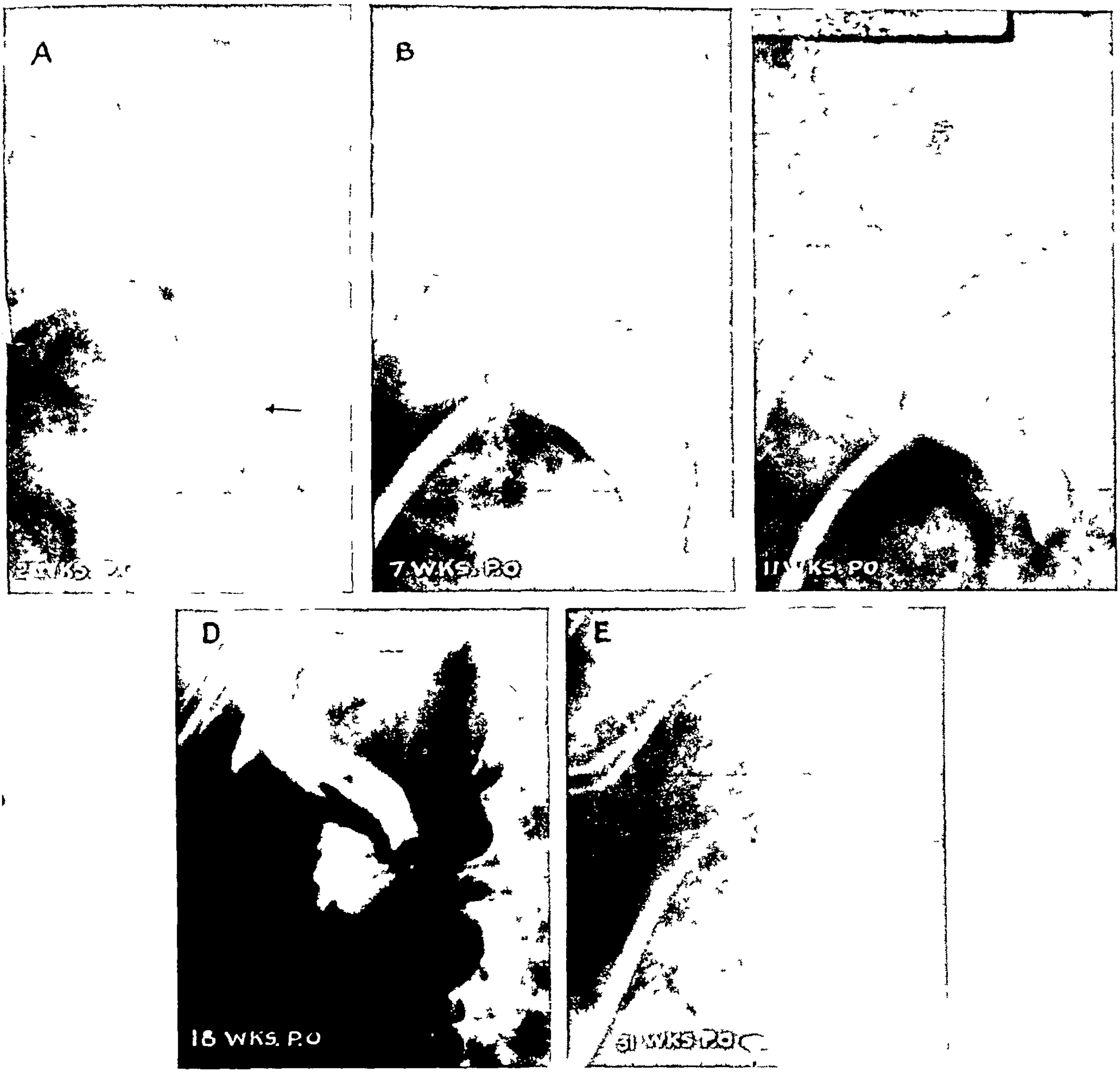

Fig 2 (case 4) —Cholangiograms taken, *A*, 2, *B*, 7, *C*, 11, and, *D*, 18 weeks postoperatively, revealing 'stone' in distal common duct with resultant partial obstruction and dilatation *E* normal cholangiogram, taken 31 weeks postoperatively

CASE 3 —A 52-year-old woman was admitted Dec 20, 1951 Five weeks before admission she had developed sudden pain in the right upper quadrant radiating to the right subscapular area Within a few days this pain was followed by jaundice, pruritus, acholic stools, and dark urine The jaundice and acholic stools persisted up to time of admission and date of operation The icterus index was 104 and the bilirubin content of the blood was 15 5 mg per 100 cc On Jan 7, 1952, she had a cholecystectomy and common duct exploration The common duct appeared to be blocked about 1 cm from the ampulla of Vater but no stone was found through the opening in the common duct Accordingly, we opened the duodenum to investigate the cause of the obstruction The duodenal papilla was very small and we were not sure that we actually identified it We opened into the common duct at a point where the common duct lay immediately adjacent to the duodenal wall as determined by proximity of the probe in the duct We then probed the common duct upward from the papilla However we found an obstruction at a distance of 2 cm that would not allow passage of a 6-mm scoop This stenosis was located in the head of the pancreas and may have been due to pancreatitis,

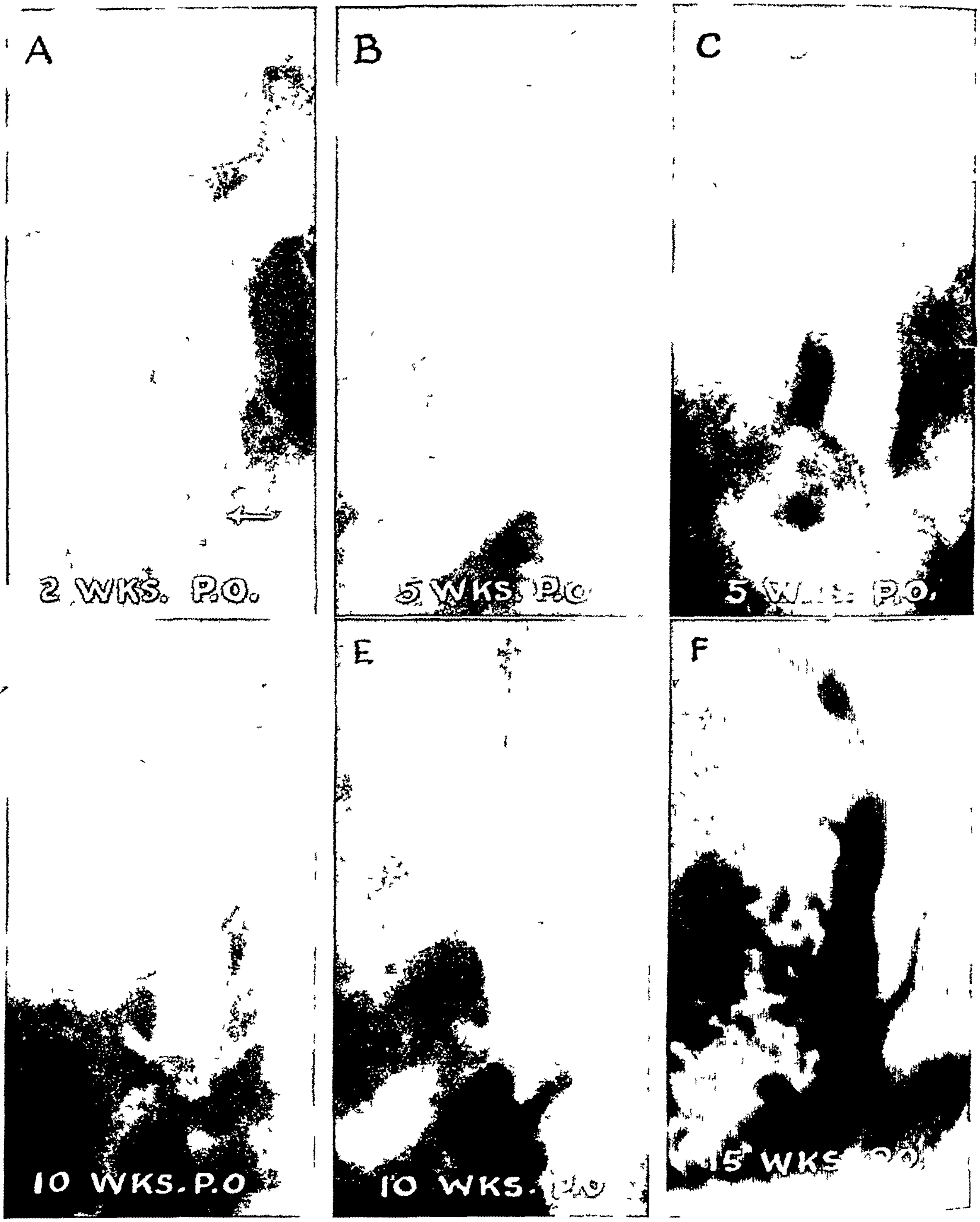

Fig 3 (case 6) —Cholangiograms taken *A*, 2, *B* and *C*, 5 and, *D* and *E*, 10 weeks postoperatively, revealing constant filling defect with incomplete obstruction *F*, normal cholangiogram taken 15 weeks postoperatively although there was very little enlargement or induration of the head of the pancreas In spite of prolonged manipulation, we were unable to find a stone that could explain the jaundice On March 26, 1952 (11 weeks postoperatively), a cholangiogram was taken A circular filling defect was noted in the distal end of the common duct, with a very small amount of opaque material passing into the duodenum around it The film taken one hour later still showed marked retention of dye in the biliary tree, indicating that considerable obstruction existed Another cholangiogram taken April 2 revealed a similar filling defect, and only a small amount of dye entered the duodenum The patient was placed on therapy with 1 Gm of bile salts four times a day, beginning April 2 A cholangiogram taken April 23, 1955, revealed absence of the stone shadow, and the iodopyracet flowed into the duodenum readily It appeared that the major obstruction was now gone, but there was distinct narrowing of the common duct 2 cm from the sphincter of Oddi Although there no longer appeared to be obstruction of the common duct we left the T-tube in place because of its narrowing Cholangiograms taken May 7 and June 11, 1952 revealed no obstruction, but the narrowing was still present Another cholangiogram, taken July 23, revealed the same findings The T-tube was removed July 23 When last heard from, on Sept 20, 1955, the patient said she had had no trouble since removal of the T-tube

Case 4 –A 68-year-old man was admitted to the hospital on Oct 28, 1954, with lower abdominal distress associated with constipation of two years duration About three weeks prior to admission he developed severe epigastric pain, with vomiting, chills, and a temperature of 104 F (40 C) The next day he noted that he had jaundice and that his urine was dark and his stools acholic This attack gradually subsided, so that, at the time of admission, he had only slight jaundice However, a few days after admission the pain, vomiting, and fever recurred along with deep jaundice On Nov 12 1954, he had a cholecystectomy and common duct exploration The gallbladder was small and shrunken The common duct was dilated to a diameter of 4 cm and contained two mulberry stones The probe entered the duodenum with ease A cholangiogram taken Nov 26 (two weeks postoperatively) revealed a radiolucent shadow suggestive of a stone at the distal end of the common duct The common duct was dilated proximal to this shadow (fig 2) There was further evidence of obstruction in that when the tube was clamped two weeks after operation, bile leaked around it to the exterior The patient was placed on therapy with bile salts on Nov 21, 1954 Cholangiograms performed on Jan 5, Feb 9, and March 30, 1955, revealed findings similar to those of Nov 26 However, a cholangiogram performed June 15, 1955 (31 weeks postoperatively), revealed no evidence of stones, the common duct was of normal size and the iodopyracet entered the duodenum readily The T-tube was removed June 15 1955 When last seen, in September, 1955, the patient was asymptomatic

Case 5 –A 59-year-old woman entered the hospital Dec 29, 1952, complaining of flatulence, dyspepsia, and fatty-food intolerance of six months duration Ten days before admission she developed jaundice and had dark urine, although the stools were not acholic The pain was variable On Jan 5, 1953, the patient had a cholecystectomy and common duct exploration There were many stones in the gallbladder and common duct Because the probe would not enter the duodenum, it was opened over the duodenal papilla A sphincterotomy was performed, since the opening through the sphincter was no more than 1 or 2 mm in diameter A cholangiogram, done while the patient was on the operating table, was undiagnostic, since the ducts filled and the iodopyracet entered the duodenum However, a cholangiogram done on Jan 14, 1953 (two weeks postoperatively), revealed a constant filling defect that appeared to obstruct the flow of iodopyracet into the duodenum almost completely Therapy with 1 Gm of bile salts four times a day was started on Jan 23, 1953 Cholangiograms performed Feb 24 and March 11 1953, were normal The T-tube was removed March 11, 1953 When last heard from, on May 25, 1955, the patient was asymptomatic and had been so since the T-tube had been removed

Case 6 –A 50-year-old man was admitted to the hospital in July, 1954, with a history of severe epigastric pain, chills, fever, and slight jaundice over a period of four or five days, two weeks before admission The serum amylase level was elevated during this attack, being above 1 000 units per 100 cc on one occasion On his second admission, the patient was asymptomatic and no jaundice was present At operation, stones were found in a badly diseased gallbladder The head and most of the body of the pancreas were indurated and enlarged to at least two times the normal size Stones and much bile precipitate were present in the common duct The stones and precipitate were removed and a cholecystectomy performed a T-tube was inserted in the common duct Cholangiograms taken 2, 5 and 10 weeks after operation revealed constant filling defects (fig 3) However when the T-tube was clamped there was no pain or significant leak of bile The patient was on bile salt therapy from the 2nd to the 15th week after operation The cholangiogram taken 15 weeks after operation was normal, and the T-tube was removed The patient has been completely asymptomatic up to the time of writing

Case 7 –A 50 year old woman was admitted to the hospital on Jan 26, 1954 Three weeks previously she had developed severe right subcostal pain, followed in a few days by jaundice acholic stools, and dark urine On the patient's admission, the bilirubin content of the blood was 3 mg per 100 cc On Jan 29 1954, she had a cholecystectomy and common duct exploration No stones were found in the common duct A probe passed through the sphincter of Oddi, but with moderate difficulty A cholangiogram taken Feb 17, 1954, revealed a radiolucent defect in the common duct about 2 cm distal to the exit of the T-tube This was diagnosed as a stone Treatment with 1 Gm of bile salts four times a day was started at this time Cholangiograms taken March 29 1954, were normal and the T-tube was removed The patient has been asymptomatic since that date

Summary

During the past seven years we have encountered nine patients in the Illinois Research and Educational Hospitals who, after cholecystectomy and choledochostomy, had residual 'stones' in the common duct as determined by cholangiography All except one of these patients had been operated on in our hospital All of these patients were treated conservatively for several months, treatment consisted of administration of 3 to 4 Gm of bile salts per day by mouth in divided doses and continuous clamping of the T-tube The "stone" shadows disappeared in seven of the nine patients in 8 to 31 weeks, in the two patients in whom the shadows persisted, operation was performed and the stones removed In all patients the obstruction was incomplete, allowing clamping of the T-tube with flow of bile through the duct all the time We would not expect this therapy to be successful if the T-tube could not be clamped, and would not try it We have no proof that these shadows represented stones All we can say is that they were suggestive of stones, and, on six or seven previous occasions when residual stones were diagnosed by cholangiography, we found stones at operation in every case

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PRESENT STATUS OF COBALT-60 TELETHERAPY IN THE MANAGEMENT OF THE CANCER PATIENT

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• *Cobalt 60 teletherapy is essentially a form of supervoltage radiation There is no specificity of action on cancers by the various modalities of supervoltage, and it is a misconception to suppose that Co ^{60} teletherapy has something to offer when 2-million volt x ray therapy has not Both offer the possibility of increasing the dosage of radiation to tumors because of better skin tolerance and a slight increase in tolerance of the deeper structures But both must be used with due regard to the possible later appearance of subcutaneous and deep muscle fibrosis and other signs of cumulative damage, and the curability of a tumor is one of its fundamental biological properties Supervoltage or Co ^{60} teletherapy is not indicated in a number of conditions, e g, lymphomas in areas of superficial lymph nodes Its use is elective in a number of other conditions, e g, mediastinal and retroperitoneal lymphomas Its use is imperative in a considerable number of conditions, including cancers of the oropharynx and urinary bladder and late cancers of the cervix and vagina It has technical advantages that need to be explored further, but an objective and unemotional approach is necessary*

The very rapid progress of atomic and nuclear physics in the last decade has resulted in new modalities of delivering radiation High-energy generators, producing either x-rays or accelerated particles, and gamma ray–emitting isotopes, such as radioactive cobalt (Co ^{60}) and cesium (Cs ^{137}), have made possible a whole range of supervoltage (from 1 to 3 million volts) and megavoltage (above 10 million volts) equipment It is unavoidable that misconceptions, unfounded hopes, and confusion will arise not only among physicians but in the public due to the extensive interest of the lay magazines in all matters pertaining to what is now called nuclear medicine The specialist himself has difficulty in assessing the clinical value of these newly developed tools

The increase of the number of deaths from cancer, due to the longer life span and the diminished incidence of deaths from other causes, is a factor in the greater awareness of cancer generally and motivates the intensified interest in all forms of cancer therapy The physical and psychological trauma caused by the protracted length of the terminal stage in many cases of cancer produces conditions favorable for an emotional approach to any new development that arouses "last-straw hopes

General practitioners, internists, and almost all the gical specialists are connected with the manage- t of cancer patients On these physicians rests the nsibility of referring the patient to a skilled and operly equipped specialist or institution Their role has a wide scope, as, in addition, they must advise the patients families and be prepared to comment on the medical information that nowadays reaches the lay public It is, therefore, essential that physicians have a background of factual knowledge about all the uses of radioactivity in the treatment of cancer, with special emphasis on their clinical usefulness or limitations

Co ^{60} teletherapy is essentially a form of supervoltage radiation The first million-volt machines were put into clinical use in the early 1930's In other words, supervoltage radiation therapy is over 20 years old The years preceding World War II saw further technological developments but it was mostly during and after World War II that the tremendous expansion of atomic and nuclear physics brought about varied and powerful supervoltage and megavoltage devices, including the production, in the atomic reactors, of gamma ray–emitting isotopes with high specific activity, which can be used for external-beam therapy

Among those gamma ray–emitting isotopes, Co ^{60} is perhaps the most suitable for use in irradiators, which are, for all practical purposes, identical to 2-to 3 million-volt x-ray generators The physical characteristics of the beam of a kilocurie teletherapy irradiator are essentially the same as those of the beam of the x-ray generators, and, therefore, the biological and clinical advantages in the treatment of human cancers are the same The costs of production and maintenance of equipment may be less, but these factors have no bearing on the clinical effectiveness This similarity of the beams is an important point, as it should dispel the rather widespread misconception that Co ^{60} teletherapy or Cs ^{137} teletherapy has any specific action in the treatment of human cancers

Co ^{60} irradiators have been in clinical use for only four years, and most of the discussion that will follow is based on the longer experience with supervoltage radiation therapy A review of the physical characteristics of supervoltage radiation and the fundamental principles underlying radiation therapy must be made prior to the discussion of the clinical advantages and indications in the various anatomic sites

Physical Characteristics of Supervoltage Radiation

The following physical characteristics of million volt x-ray beams are pertinent to the treatment of human cancers 1 The moist desquamation of the skin, which is inevitable at 200 kv, the level at which doses adequate for control of deeply located cancers are delivered, can be avoided 2 The radiant energy

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Read before the Section on Radiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 12, 1956

is not dispersed sideways outside of the beam, and, therefore, adjacent structures receive less radiation In addition, the body as a whole absorbs less radiant energy, and, consequently, there is less systemic reaction, such as x-ray sickness, drop in blood cell count, or general fatigue 3 A greater percentage of the energy reaches the deep-seated organs, and, therefore, it is possible to deliver larger doses to cancers in these organs 4 There is less absorption by bone, which can be significant if there are bony structures between the surface of the body and the tumor to be treated, and, therefore, there is less risk of late osteonecrosis All these characteristics are additive—to the effect that the physician can deliver greater tumor doses with less skin reaction, less systemic discomfort, and, up to a point, a better deep organ tolerance

Radiation of any kind (x-ray, gamma rays, and accelerated particles, such as electrons, protons, and alpha particles) always act through the same physical phenomena of ionization and excitation These physical phenomena at the level of the atomic structure are responsible for the chemical changes that, in turn, are responsible for the biological changes that produce damage to all living cells There is, at times, irreversible damage, making possible the sterilization of cancers There are slight quantitative differences in the biological effectiveness of the different forms of radiation Extensive physical and biological studies have demonstrated this difference to be from 10 to 15% more for the million-volt range than for the 200 kv range This difference is not specific for cancer cells but applies to all living cells In practice, this means that, if, in order to sterilize a tumor, a tumor dose of 5,000 r in five weeks is necessary with 200 kv radiation, 5,500 6,000 r is necessary with supervoltage radiation

Principles Underlying Radiation Therapy

Radiation therapy of human cancers is possible because some types of cancer have a greater sensitivity than the normal supporting structures This margin of tolerance varies depending on the type of tumor and on the organ from which the tumor arises This margin is usually very narrow Tumor cells themselves are not affected differently by supervoltage radiation, but the deep-organ tolerance is somewhat increased, and, therefore, greater tumor doses are possible For instance, in the treatment of tumors of the urinary bladder, 6,000 r in five weeks can be delivered to the whole bladder with supervoltage radiation without reactions unbearable to the patient, whereas 5,000 r cannot be delivered safely and without excessive discomfort to the patient in the same period of time using the 200-kv equipment Therefore, in this instance, there is a positive balance that is demonstrated by improved clinical results The same holds true for irradiation of the whole pelvis in the late stages of cancer of the cervix and also for irradiation of the posterior third of the oral cavity and pharynx

There is no specificity of action of supervoltage radiation on tumor cells as compared with radiation of 200 kv, tumors that are normally radioresistant to medium voltage will stay resistant to supervoltage For instance, melanomas, glioblastomata multiformeia, soft tissue sarcomas, and, by and large, the adenocarcinomas originating in the gastrointestinal tract are not benefited by supervoltage therapy There are exceptions For instance, the adenocarcinomas of the rectum that have some degree of radioresponse can at times be controlled with supervoltage radiation because much higher doses can be delivered This can be put to advantage in inoperable tumors, or local recurrences This form of therapy is not an alternate method for the classic abdominoperineal resection, which should be performed whenever possible It is evident that the ability to deliver larger tumor doses is of most use in the treatment of those tumors that are moderately radiosensitive, such as the keratinizing epidermoid carcinomas and those that are located in areas inaccessible to the eminently effective interstitial or intracavitary radium therapy or in areas not directly available to low-voltage or medium-voltage radiation

Larger volumes of tissue can tolerate only smaller doses of radiation Recovery from the radiant energy comes from the surrounding undamaged structures, particularly blood vessels The situation is very similar to the healing of wounds or burns, and recovery becomes slower and even impossible if large areas are overirradiated Therefore, if the cancer is very extensive and the volume necessary to encompass the whole tumor is very large, the dose must be less if irreversible damage to vital structures is to be avoided Unfortunately, the chance for permanent control decreases At times, if a long-lasting control rather than a permanent cure is desirable, only part of the known tumor can be included in the beam in order to deliver sufficiently high doses For instance, if the aim of treatment is to reopen the lumen in cancer of the esophagus and preserve this lumen until death occurs from distant metastases, one must limit the irradiation to the visibly obstructing part of the cancer

The treatment of cancers with radiation is not different from the surgical approach Instead of removing en bloc the volume of tissue that contains all tumor cells, one must deliver high doses of radiation to the same volume in order to sterilize all tumor cells In the same way that surgery is limited by the problem of the removal of part or all of some vital structures, the necessarily high tumor doses are limited by irreversible damage incompatible with life

When the cancer is too extensive or even more generalized, there is, of course, no form of radiation, irrespective of the modality and voltage, that can appreciably affect the course of the disease However, radiation may be used for relief of one specific local symptom, oftentimes producing great benefit to the patient The advantages of supervoltage radiation cannot be measured only by improved cure rates, with five-year survival being the criterion The temporary control of distressing symptoms is very beneficial even if it does not prolong life These clinical benefits can rarely be expressed in statistics

In mentioning the advantages of supervoltage radiation, one tends to overlook the fact that its use is accompanied by limitations and late sequelae It takes years for the subcutaneous and deep muscle fibrosis to set in after heavy radiation treatment The absence of acute skin reaction is very conducive to overenthusiasm and radical treatment In addition, the skin-sparing effect tends to encourage the use of supervoltage radiation for the treatment of recurrences after previous radiation This can be carried without any appreciable skin reaction but unfortunately the previous damage to the inner structures, which never subsides, oftentimes causes exceedingly painful radionecrosis It is only in rare circumstances, and with great conservatism that re-treatments can be performed without excessive risks

In many ways, the development of new radiotherapeutic tools and in particular supervoltage radiation can be compared with the advances in surgery and anesthesiology that have made possible more radical and, therefore at times more effective procedures, resulting in appreciable clinical progress They are not, however, a revolutionary approach Greater skill and more clinical experience are necessary to adapt these powerful tools to the natural history of the disease processes with which one is trying to interfere By and large, increased clinical benefits may be derived from supervoltage or Co^{60} teletherapy in the area of those cancers that are neither radioresistant nor generalized when first seen and that, therefore one can hope to control or cure

Usefulness of Cobalt 60 Teletherapy in Various Tumors

Not Indicated	Elective	Imperative	Special Studies Desirable
Head and neck	Esophagus	Extensive tumors of anterior ⅔ of oral cavity	Preoperative x ray therapy for breast cancer
Skin and lip	Mediastinal and retroperitoneal lymphomas	All tumors of Posterior ⅓ of oral cavity (fauces tonsils base of tongue soft palate)	Some rectal cancers
Anterior ⅔ of oral cavity (early)	Seminomas	Paranasal sinuses	Some thyroid cancers
Vocal cord (early)	Occasionally bronchogenic carcinoma	Oropharynx and hypopharynx	Miscellaneous tumors
Nasopharynx with no involvement of base of skull	Ovarian cancers (localized to pelvis)	Extrinsic tumors of larynx	Locations where skin must be spared (metastases to pelvic bones)
Early cancers of cervix and vagina (intracavitary radium therapy)		Inoperable neck nodes (postoperative recurrences)	
Postoperative breast irradiation		Late cancers of cervix and vagina	
Lymphomas in areas of superficial lymph nodes		Epidermoid carcinoma of	
Bony metastasis		Female urethra	
		Urinary bladder	
		Embryonal carcinoma of testis	

In the epidermoid carcinomas accessible to low-voltage or medium-voltage therapy, such as cancers of the skin and lip, and in those epidermoid carcinomas optimally treated by interstitial or intracavitary radium therapy, such as the early cancers of the anterior two-thirds of the oral cavity or those of the uterine cervix, supervoltage therapy has nothing to offer and its use would even be a retrograde step A review of the various anatomic sites and a discussion of the sites in which particular tumors can be handled best with supervoltage radiation (see table) are in order

Sites of Tumors and Radiation Therapy

Head and Neck—Early epidermoid carcinoma of the anterior two-thirds of the oral cavity is still best handled by conventional means of interstitial radium therapy In contradistinction, satisfactory results are not obtained in extensive tumors, and, if radical surgery is not indicated, supervoltage therapy offers a chance for more permanent cures or, at any rate, better growth restraint

Even in the early epidermoid carcinoma of the posterior third of the oral cavity and oropharynx, results are unsatisfactory with conventional means of therapy It is already a well-established clinical fact that supervoltage radiation offers a better chance for local control in this group of carcinomas In addition to better control of the primary lesion, more adequate handling of the often-present metastatic nodes is possible with supervoltage therapy, especially in combination with radical neck dissection In radical neck dissection after Co^{60} teletherapy, there is not nearly as much danger of delayed wound healing

With rare exceptions, the epidermoid carcinoma of the paranasal sinuses is rarely cured by radiation alone or by surgery alone The combination of the two offers a better chance of control Here too, postoperative radiation delivered with Co^{60} can give a better distribution of the radiation and a higher tumor dose

Supervoltage radiation also offers the possibility of control and possible cure in malignant tumors of the parotid gland—either primary adenocarcinoma, myoepithelial tumor, or metastases to the lymphatics of the parotid gland from epidermoid carcinoma Here at times surgery followed by radiation is beneficial

Inoperable metastatic nodes in the neck and postsurgical recurrences require high doses for control If interstitial radium implant is not indicated, the Co^{60} irradiator often produces sterilization of those masses

The effectiveness and the place of radiation therapy in the management of thyroid cancer has never been definite The advent of supervoltage radiation has not changed the basic policy of treatment, which should be primarily surgical If, however, disease remains in a small area let us say, on the trachea, high-dose radiation to a small volume can be delivered with the Co^{60} irradiator and will possibly aid in control

The early epidermoid carcinoma of the vocal cord can be handled very satisfactorily with 200 kv, although there is some advantage in using Co^{60} because it produces less late skin change In the treatment of the more extensive, extrinsic or intrinsic tumors of the larynx, if a laryngectomy cannot be performed or is refused, Co^{60} teletherapy increases the possibility of cure over that with 200 kv If radiation therapy fails, a laryngectomy can be performed with much less danger of delayed wound healing and necrosis

Thorax—The epidermoid carcinoma of the esophagus and the lung is incurable in the vast majority of cases because when it is first diagnosed the disease is too widespread Two decades of radical surgical approach has taught us a great deal about the mode of spread and causes of incurability Oftentimes surgical resections or radiation treatment are utilized to relieve some specific distressing symptom

The use of rotation technique at 200 kv in the hands of Nielsen in Copenhagen has yielded very satisfactory palliation for cancers of the esophagus in some instances In more than 80% of the cases so treated, the lumen was reopened and swallowing was possible until the time of death Very little more can be expected with supervoltage radiation, and the only advantage of the use of a Co^{60} irradiator is to simplify delivery of the radiation

Whenever operable, bronchogenic carcinomas are best handled by surgery, as the unavoidable lung fibrosis, even with the use of supervoltage radiation, is a distressing symptom It is only in the occasional early case of bronchogenic carcinoma that, due to the location, is unsuitable for surgery that radical radiation therapy is justified In this instance, a simple arrangement of portals can be used with a Co^{60} irradiator, but it must be remembered that, with skillful use of the multiple-portals technique, cures have been obtained in the past with 200 kv No increase in cure rate can be expected from supervoltage radiation Local control of mediastinal nodes producing obstruction of the superior vena cava can be achieved with tumor doses that can be delivered easily at 200 kv, although control can be obtained, perhaps with less systemic discomfort by using Co^{60} therapy Actually grid therapy with 200 kv is probably as good

In those distressing instances of cancer of the thorax, any new therapeutic development always brings about almost mystical hopes An extensive series of cases of both bronchogenic carcinoma and cancer of the esophagus has been treated with supervoltage therapy and always with very disappointing results Supervoltage radiation offers little assistance in the management of these diseases

Female Genital Tract—Stage 1 and early stage 2 cancers of the uterine cervix are best handled by intracavitary radium therapy supplemented with moderate doses of external irradiation to the pelvic walls Until physicians know more of the tolerance for external irradiation of the whole pelvis, the risks of late sequelae should be reserved for late stage 2, stage 3, and stage 4 cancers of the cervix, in which the cure rates are not satisfactory High doses to the whole pelvis are possible with supervoltage therapy and are, therefore, worthwhile in the treatment of cancers that are spread throughout the pelvis Preliminary impressions from several cancer centers seems to indicate that improved cure rates will result from supervoltage therapy in late uterine cancers Advanced tumor of the vagina and all stages of epidermoid carcinoma of the female urethra are also best treated with supervoltage radiation

Conventional techniques of intrauterine and intracavitary radium therapy followed by hysterectomy are still the best way to handle adenocarcinoma of the body of the uterus, and supervoltage radiation is only useful in those cases in which the tumor has spread beyond the confines of the body of the uterus

In selected cases of ovarian tumor, in which surgery has left residual disease within the pelvis, the use of high tumor doses, possibly with supervoltage techniques, may add something to the management of the disease

Urinary Bladder—A tumor of the urinary bladder that is suitable for local treatment, such as electrocoagulation, local radiation, or partial cystectomy, of course, ought still to be handled by these methods When total cystectomy has to be performed, supervoltage radiation should be considered, particularly if there are paravesticular masses Although cure rates may not be greatly improved, one can produce growth arrest with much less discomfort and, therefore, can add to the patient's useful and comfortable life Sufficient numbers of tumors of the urinary bladder have already been treated in various centers to demonstrate that supervoltage therapy is a definite addition in the management of those tumors

Tumors of the Testis and Lymphoma—Both the seminoma and lymphoma can be controlled by doses easily delivered with a 200-kv generator Supervoltage radiation makes the delivery of an adequate tumor dose easier for permanent sterilization of the retroperitoneal nodes or for long-lasting control of retroperitoneal or mediastinal manifestations of lymphoma Embryonal carcinoma of the testis requires tumor doses that are difficult to give with medium voltage, and, although further study will have to be done, there is some possibility that somewhat improved cure rates can be obtained in these tumors by a better control of the retroperitoneal nodes

Miscellaneous Types—There are a number of tumors, usually rare, that show some varying degree of radioresponse, and, if they are located in such areas as the pelvis or the abdomen, the dosage necessary for cure or long-lasting control is more easily delivered with supervoltage radiation For instance, a Ewing s sarcoma of the pelvic bones can be treated best with Co^{60} therapy, because a higher tumor dose can be obtained with the necessary sparing of the skin

At times, radiation for relief of pain due to bony metastases is better achieved with supervoltage radiation due to the utmost necessity of sparing the skin, for instance, the skin above the lower part of the back or the sacrum, so that the possibility of the development of decubitus ulcers when the patient becomes bed-ridden is diminished

In selected cases, a resectable adenocarcinoma of the rectum with recurrences localized to the pelvis can be effectively controlled by supervoltage therapy

The routine postoperative radiation of the internal chain of mammary lymph nodes and supraclavicular nodes after radical mastectomy is still probably best done with a 200-kv generator The depth dose of the supervoltage beam produces fibrosis of the lung and mediastinum that is not justifiable for this adjunctive therapy, which has never been uncontroversially proved to increase the survival rate in breast cancer In the more advanced breast cancer in which surgery alone is no longer effective even in the control of the primary tumor and the regional lymphatics, a combination of preoperative radiation followed by mastectomy or of a simple mastectomy followed by heavy local radiation by the McWhirter method is indicated

Radiation to the whole chest wall, in addition to the lymphatic areas, is imperative and supervoltage helps diminish the severity of the skin reaction.

Summary and Conclusions

The present status of cobalt-60 therapy or supervoltage radiation of the 2-million-volt range can be summarized by the following statements: 1. There is the possibility of increasing tumor doses because of better skin tolerance and a slight increase of the tolerance of the deeper structures. 2. There is no specificity of action on tumor cells and therefore, no fundamental change in the radiosensitivity of tumor cells. 3. The modality of attack always has to be adapted to the natural history of the cancer, as its curability is fundamentally inherent in its biological behavior.

Supervoltage therapy is of no advantage in early accessible cancers treated optimally by low-voltage or medium-voltage x-rays (such as in cancer of the skin and lip) or by intracavitary or interstitial radium therapy (as in early epidermoid carcinoma of the oral cavity and uterine cervix). It does not offer assistance in radioresistant cancers and offers very little in the treatment of widespread cancers even if they are of the radioresponsive type. For instance, in bronchogenic carcinoma supervoltage radiation offers very little more aid than does 200 kv. radiation and probably even no advantage over 200 kv. grid therapy for the relief of symptoms such as mediastinal nodes pressing on the superior vena cava. In those cancers such as cancer of the esophagus no improvement in cure rates can be expected.

It is important to dispel some of the misconceptions concerning supervoltage therapy and Co^{60} teletherapy. These misconceptions are responsible for grave disappointments as well as for the unfortunate physical and financial strain put on patients and their families by their seeking supervoltage therapy in faraway centers.

These misconceptions are (1) that supervoltage has anything to offer in generalized cancers, (2) that the radioresistant cancers are radiosensitive to supervoltage therapy, (3) that treatment of a recurrence after an original radiation treatment is feasible with supervoltage therapy, and (4) that there is any specificity of action on cancers by the various modalities of supervoltage, for instance that Co^{60} teletherapy has something to offer when 2-million-volt x-ray therapy has not.

It should be added that the newer forms of megavoltage equipment now in the process of clinical testing or development will also have no specificity of action. It is possible that, in some instances, there may be a further technical progress but thorough clinical evaluation must be completed before any conclusions can be drawn. It is, however, doubtful that they will represent as great an improvement as the jump from 200 kv. to 2 million volts. Less skin reaction and less loss of radiant energy outside of the beam are the main advantages and only some refinements will be obtained by further technological developments.

The task in the coming decade is more in clinical than physical treatment. Considerable experience is yet to be obtained in the adaptation of supervoltage therapy to those cancers that are still potentially curable in a certain percentage of cases but that have not been curable in the past due to the inability to control the primary disease and the proximal regional metastases. Also closer teamwork between the surgeon and the radiotherapist is in order, because supervoltage radiation broadens the possibility of combined surgery and radiation in many instances.

This clinical testing must be done with objectivity because overenthusiasm and misconceptions are too often conducive to rebounds to underrating the true possibilities. This happened in the 1930s after the first million-volt machines were built and put into clinical use. Primarily the cases treated were hopeless, and as results were very different from those achieved with conventional techniques, it was very hurriedly concluded that supervoltage radiation offered no advantage. It has taken over 15 years for the medical profession to recover from that premature misconception and there is danger of the same thing recurring if an objective and unemotional approach to Co^{60} teletherapy is not preserved.

Limitations of Chemotherapy in Tuberculosis.—With the successful development of potent chemotherapeutic agents in the past several years the effectiveness of chemotherapy in human tuberculosis has not been limited by lack of effective antimicrobial drugs. This has been reflected in the high percentage of cures now possible in tuberculosis. It is perhaps no exaggeration to state that approximately 90 per cent of unselected and previously untreated cases now can be controlled with chemotherapy. This is true not only for pulmonary tuberculosis but similar results have been recorded in tuberculosis of bones and joints, tuberculous meningitis, genito-urinary tuberculosis, laryngeal tuberculosis, etc. It is thus important from a practical clinical point of view to analyze the causes of chemotherapy failure. Moreover, such analysis leads to better utilization of chemotherapy and more effective application of accessory procedures such as surgery or collapse therapy. Sufficient experience has now accumulated to permit tentative efforts at such evaluation. These indicate that limitations of effective antituberculous chemotherapy at the present time stems from three sources: difficulties inherent in the nature of chemotherapeutic agents, those derived fromthe nature of the disease under treatment and, finally, those secondary to biological changes in the bacterial population itself.—I. J. Selikoff, M.D., The Chemotherapy of Tuberculosis, *Journal of the Mount Sinai Hospital*, July-August, 1956.

BLOOD-GROUPING TESTS IN UNDISPUTED PATERNITY PROCEEDINGS

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• *Persons who were involved in litigation relating to paternity were invited to submit to blood grouping tests after the cases had been settled by the defendant's admission of paternity Cooperation was obtained in 67 cases, and the bloods were typed by the A B O system, the M N system, and the Rh Hr system Three children were found by the A-B O system not to be the offspring of the men who had admitted paternity, similarly the M N and the Rh Hr systems excluded three and two children respectively In one of these instances a child was excluded by both the M N and the Rh Hr systems It was probable that in 12 out of these 67 cases the men who had admitted paternity were not the actual fathers Admissions of paternity were thus found unreliable It is urged, in the interests of justice, that a blood test should be ordered in every case involving a charge of paternity*

Heretofore use of blood-grouping tests, whose value has been firmly established by numerous investigators,[1] has been confined to those cases where the accused man has denied paternity In these contested cases the scientific evidence of the infallibility of an exclusion based on blood tests is such that many states (New York, Maine, New Hampshire, New Jersey, Wisconsin, Ohio, Maryland, South Dakota, North Carolina, Pennsylvania, and Rhode Island[2]) have enacted statutes which make blood test exclusions decisive of the issue However, the majority of men involved in paternity suits do not contest the charge It is this group of cases with which this report is concerned

In the courts where paternity cases are heard, only a minority of the accused men deny paternity This group, therefore, are the only ones who are privileged to request blood tests to sustain their denial It has been shown that 30 to 40% of these men who deny paternity are falsely accused[3] In the majority of cases heard in these courts, however, the accused man admits paternity and accepts the burden of support imposed by the court

Since no direct scientific findings can prove that the defendant is the father, the motivation for an admission of paternity is of interest Usually it is one of these (1) a sincere belief that he is the father, (2) a sense of pride arising from the fact that he could be the father, (3) a total lack of financial responsibility and, therefore, a careless attitude toward the situation, (4) inability to afford defense of the action and costs of blood tests and other evidence, or (5) a state of ignorance which confuses intercourse with paternity

This report presents the findings in 67 cases of uncontested paternity where the involved persons submitted to examination after their suits were completed All of these cases had been settled by the admission of paternity by the defendants, awards for support and expenses had been imposed, and the cases had been closed Subsequent to all court actions, the involved parties then voluntarily submitted to blood-grouping tests Obtaining the cooperation of these persons after their cases were completed was understandably difficult The 67 cases represent the total number in which tests were completed in a three-year period during which over 500 litigants were interviewed and requested to submit to tests The tests were performed in the usual manner of duplicate testing by different technicians using different lots of serum ABO groupings were determined by direct cell typings with known anti-A and anti-B serum, and anti-A + B (O) serum, and by reverse typings with known A cells and B cells with the serum being tested M-N groupings were determined with four anti-M and four anti-N rabbit serums by well and test-tube techniques Rh-Hr groupings were determined by use of saline and "stick" tests with known Rh_0, rh′, rh″, hr′, and hr″ antiserums in duplicate Negative reactions were checked by use of antiglobulin techniques where pure or unblocked serum was used for the testing (Pure′ or unblocked serum refers to a serum containing only a single antibody Thus a pure rh″ antiserum is obtained from a sensitized donor whose phenotype is Rh_1rh, thus lacking only the rh″ factor A blocked Rh_0″ antiserum is not suitable for the antiglobulin test for this purpose, as the test would be falsely positive due to coating of the test cells by the univalent Rh_0 antibody in the blocked serum) Positive and negative controls were incorporated in each run In addition to tests for accepted blood group systems listed in a report[4] on the "Medicolegal Application of Blood Grouping Tests," additional tests were done with anti-Kell serum and anti-P serum

Exclusions Obtained in Sixty-seven Cases of Uncontested Paternity

No	Putative Father	Mother	Children	Excluded by System
1 (Case 2)	O N Rh rh	A MN Rh_2rh	A_2 M Rh_1rh	M N Rh Hr
2 (Case 8)	O MN Rho	O M Rho	(a) O M Rho (b) A_1 M Rho	Not excluded A B O
3 (Case 16)	O MN Rho	B MN Rh_1Rh_1	(a) O N Rh_1Rh_1 (b) O N Rh_1rh (c) B MN Rh_1rh	Rh Hr Not excluded Not excluded
4 (Case 21)	B M Rho	B M Rho	A_1 M rh	A B O
5 (Case 39)	O M Rh rh	O [illegible] Rho	(a) O N Rh_2rh (b) O N Rh rh	M N M N
6 (Case 56)	B N Rh Rho	O M Rho	A_1 MN Rh_1rh	A B O

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The results obtained, listed in the table, indicate that, of the 67 men involved in these cases of uncontested paternity action, 6 were absolutely excluded as the father of the involved child As has previously been shown, blood groupings using the A-B-O, M-N, and Rh-Hr systems can exclude only 50% of the falsely accused men[1h], it follows that, in fact, 12 or 18% of the accused men who admitted paternity were probably not the fathers of the children they accepted as their own!

Comment

This report again emphasizes the need for use of all the available systems for blood grouping Failure to test with antiserums to determine the subgroups of the Rh system reduces the value of the tests considerably Thus, in this small series of six cases, involving seven children, three children were excluded by the A-B-O system, three by the M-N system, and two by the Rh-Hr system One exclusion involved both the M-N and the Rh-Hr systems Familiarity with these uncommon testing serums and a knowledge of the laws of genetics governing the inheritance of the blood factors are essential to the proper conduct and evaluation of the tests For these reasons the medicolegal aspect of blood testing must be restricted to qualified experts The availability of rapid air transportation makes the expert laboratory easily accessible

In this small series of typical cases of conceded paternity, 18% of the men are probably not the fathers of the children whose paternity they admit This fact has a significant bearing on the reliability of admissions of paternity which are routinely and perfunctorily accepted daily in our courts The courts hould realize that 18% of the men who do not contest he charge are admitting paternity of children not their own In the interests of justice, a blood test should be ordered in every case involving a charge of paternity

Summary and Conclusions

Blood-grouping tests in 67 cases of uncontested paternity indicate that in 6 cases, or 9% the men admitting paternity were not the fathers of the children they accepted Since only 50% of wrongfully accused men can be excluded by present methods of blood testing, it follows that not 6 but actually 12 men in this small series who admitted paternity were probably not the fathers of the children in question The demonstrated unreliability of admissions of paternity should be drawn to the attention of the proper authorities

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3 Footnote 1*e h* and *i*

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Nongonococcal Urethritis—The effectiveness of the intramuscular form of Terramycin as compared with some other standard forms of treatment in nonspecific urethritis was studied in 57 patients Ninety-five per cent of the patients receiving either sulfadiazine or the oral form of Terramycin were considered cured or improved Terramycin intramuscularly appears to be of some benefit in the treatment of nonspecific urethritis, although inferior to sulfadiazine and Terramycin orally Of those patients receiving no specific therapy, about 65 per cent were considered cured or improved, this points up the difficulty in evaluating any new type of therapy Bacteriologic studies and the nature of the responses to the various antibiotics used lead one to conclude that the hemolytic staphylococcus may play an important role in causing this disease Nonspecific urethritis is a disease that may have a rather prolonged course and that is subject to spontaneous remissions and relapses That it is acquired by sexual intercourse is surmised but by no means proved Because of the apparent frequency of some degree of prostatic involvement "prostatourethritis" rather than 'urethritis" would be a better term for the disease—F S Wolf, M J Thoshinsky, Sanford Chodosh, and J O Arrington Jr, Therapy of Nongonococcal Urethritis, *United States Armed Forces Medical Journal*, June, 1956

INTESTINOVESICAL FISTULAS

REPORT OF SEVEN CASES AND REVIEW OF THE LITERATURE

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• *Whether the cause of intestinovesical fistula is inflammatory, neoplastic, or traumatic, the mechanism of production is localized intestinal pathology, abscess formation, and extension to the bladder. The diagnosis is made from a history of passing gas and feces from the urinary tract. The best treatment is a multistage procedure, with the colostomy first, and then resection of the intestine and fistulous area of the bladder; cystostomy is not always necessary.*

Although relatively few articles have been written on the subject of intestinovesical fistula in the past 15 years, the literature prior to 1940 is replete with numerous reports. Our recent experience with the condition prompted this report of seven cases with a review of the literature and reevaluation of the subject from the standpoint of diagnosis and treatment.

Since ancient times, the passage of feces and air via the urethra has been considered pathognomonic of intestinovesical fistula. In 1888, Cripps wrote a classic study entitled "Passage of Air and Fæces from the Urethra."[1] Many of the fundamental facts and views elucidated by him are still valid today. He emphasized that in most cases, whether neoplastic or inflammatory in origin, secondary abscess formation rather than direct extension of the lesion was the chief factor in the production of fistulas. Those interested in the historical background of the subject are referred to the excellent review articles by Morrissey, Kellogg,[1A] Higgins,[2] and Parham and Hume.[3]

Etiology

A simple classification of intestinovesical fistulas based on the etiology has been employed by many authors and divides these fistulas into five main types: (1) congenital, (2) traumatic, (3) inflammatory, (4) neoplastic, and (5) foreign body. A comparison of the relative frequency of the etiological factors is summarized in the table.

In recent years, there has been a noticeable change in the nature of the primary causative factors of this disease. This is borne out by the experiences at the Mayo Clinic. In 1921, Sutton,[4] of the Mayo Clinic, reported on 34 surgically treated cases, of which 38.23% were secondary to infection in the fallopian tubes and only 17.6% due to diverticulitis. Subsequently in 1950 Mayo and Blunt[5] collected 202 proved cases of diverticulitis seen at the Mayo Clinic between 1939 and 1948 and observed intestinovesical fistulas in 46, or 22.8%, of the patients.

There is little mention in the literature in regard to regional ileitis (Crohn's disease) as an etiological factor. Recently, Black and Bolt[6] and Williams[7] have reported single cases. Williams[7] collected 365 cases of regional ileitis, with 23 ileovesical fistulas. Robinson[8] reports three cases of ileitis with vesical fistula. According to Williams,[7] congenital fistulas are practically always associated with imperforate anus. Ladd and Gross reported 214 cases of imperforate anus and observed fistulas between the rectum and bladder in 117 of them.

Traumatic fistulas are produced either by external violence (chiefly gunshot wounds) or by surgical injury. The latter type may occur after instrumentation, i.e., passage of a metallic sound, cystoscope, or resectoscope, or during surgery. Williams[7] noted 22 traumatic cases in a series of 148 intestinovesical fistulas. Ten of the 22 cases occurred after prostatectomy; most of them were rectourethral or at the bladder neck. In all probability, traumatic fistula is more commonly encountered than reports would indicate. We have seen three cases of intestinovesical fistula resulting from operative trauma, i.e., after suprapubic prostatectomy, resection of posterior bladder for neoplasm, and operation for imperforate anus. These cases have not been included in this report.

Inflammatory conditions represent the most common cause of fistulas. Not infrequently the primary causative lesion in cases of inflammatory fistula is an unsuspected carcinoma of the intestine or other adjacent organs whose presence is revealed at operation or autopsy. In the majority of instances of intestinovesical fistula, regardless of the cause, there is abscess formation and extension to and communication with the bladder. The chief primary inflammatory disease encountered is diverticulitis of the sigmoid. Regional enteritis is next in frequency. Rarely, fistulas may form as a result of appendicitis or cecal or pelvic inflammatory disease.

Neoplastic disease ranks a close second to inflammatory disease as a causative agent. Carcinoma of the rectosigmoid is the most common lesion. In the series of 34 cases collected by Higgins[2] at the Cleveland Clinic, 13 were due to carcinoma of the lower part of the intestine, i.e., 7 sigmoid, 2 rectosigmoid, and 4 rectal. Neoplasms of the bladder or female pelvic organs are rarely primary causative factors.

There have been scattered reports of the production of intestinovesical fistulas as a result of ingestion of foreign bodies. Herbst and Miller[9] reviewed the literature and reported a case that occurred after the patient had swallowed a chicken bone. The chief offenders have been bones and pins swallowed acci-

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dentally In a few instances, there was some doubt as to whether the foreign body was ingested or inserted via the urethra In most cases the foreign body becomes lodged in the lower part of the intestine and initiates an inflammation with perforation, abscess formation, and fistula

Appendicovesical fistula represents a rare type of fistula Pemberton and co-workers [10] reported only five cases from the Mayo Clinic In three of these cases there was an antecedent history of acute appendicitis Goldstein [11] reported a case in which a biopsy was performed and fulguration done on a tumor on the right lateral wall of the bladder The tumor subsequently proved to be the appendix protruding into the bladder

It is of interest to note that intestinovesical fistula occurs more frequently in males than females (3 2) The interposition of the uterus between the intestine and the bladder apparently serves as a defensive barrier against the spread of infection from the sigmoid colon to the bladder in the female

Relative Incidence of Different Types of Intestinovesical Fistulas as Found by Various Authors

Author	Intestinovesical Fistula			
	Congenital	Traumatic	Neoplastic	Inflammatory
Higgins	21	60	113	168
Kellogg[14]	3	20	16	51
Ewell and Jackson J Urol 46 693 1941		1	7	3
Sutton[4]		3	2	29
Ormond and others Surg Gynec & Obst 89 411 1949		3	14	8
Williams	6	22	64	51
Total	30(5%)	109(15%)	216(33%)	310(47%)

Pathogenesis and Symptoms

The mechanism of production of an intestinovesical fistula is essentially the same whether the cause is inflammatory, neoplastic, or traumatic The primary requisite is localized intestinal pathology with perforation, abscess formation, and extension to the bladder The lower part of the intestine, with its many virulent organisms, is often the chief site because of its proximity to the bladder The two most common conditions in the rectosigmoid, i e, diverticulitis and carcinoma, are the frequent causative agents

There are two pathways by which the infection spreads to the bladder 1 Adherence to the bladder via an abscess In this manner, as in diverticulitis, a marked peridiverticulitis develops with abscess formation and adherence to the bladder and subsequent rupture into the bladder This mechanism is commonly described in the literature 2 Extension of an inflammatory or suppurative process from the diverticulum along the mesosigmoid and/or the ureter to the base of the bladder and thence into the bladder This mechanism was encountered in four of our seven cases of fistula We have found only scant reference to this in the literature Since the most common site of intestinovesical fistula is in the region of the trigone of the bladder and ureteral orifice, which are retroperitoneal structures, it is our belief that the latter is a more common pathway of spread than has been appreciated up to this time

In most instances, it is difficult, in either the fresh or the fixed specimens, to identify the fistulous tract Usually, the tract is so tortuous that it defies dissection, and one sees only a mass of chronic inflammatory tissue Mayfield and Waugh [12] made a careful pathological examination of specimens in 32 cases of sigmoidovesical fistulas, and in only one case was the fistulous tract definable

In the fully developed case of intestinovesical fistula, the diagnosis can be made from the history The usual story is one of passing gas and feces via the urinary tract, with concomittant urgency, frequency, and dysuria due to the associated cystitis There may be hematuria in the later stages Symptoms and signs of the primary causative disease may also be present In most cases, there is pain in the lower part of the abdomen and constipation The fistulas in the lower part of the colon usually do not lead to passage of urine into the colon The higher the site of the intestinal communication, the more likely it is for urine to appear in the stool In ileovesical fistulas, the patient will frequently pass urine per rectum

Many authors have emphasized a stage in the development of the disease prior to the actual fistula formation In this prodromal stage, in which there is abscess formation and pericystitis, the only symptoms indicating the disease may be those referrable to the bladder Lazarus and Marks [13] emphasized an incipient stage before fistula formation, when the threatened breakthrough is manifested by the sudden onset of frequency, urgency, burning, pyuria, and albuminuria When the breakthrough occurs, it may be explosive in onset, with severe tenesmus and strangury due to the acute cystitis This may then pass into a chronic stage Some patients may have pneumaturia and fecaluria for several years before they seek help Mayo and Blunt [5] noted an average duration of symptoms of 18 5 months in 48 patients with vesicosigmoid fistula before they sought medical care

The diagnosis is suggested by the clinical history and physical signs Cystoscopy may be of value in establishing the diagnosis During the incipient stage, one may observe a localized area of cystitis with edema and engorgement of the vessels, generally on the left side near the base of the bladder After fistula formation, there is edema, marked cystitis, and particulate fecal matter in the urine One rarely observes the actual fistulous opening because of the associated inflammatory changes and bullous edema

Proctosigmoidoscopy has virtually little diagnostic value The fistula may be demonstrated by either a cystogram or a barium enema When in doubt, one may instill methylene blue or sodium indigotindisulfonate (indigo carmine) in the bladder and recover it in the stool One may also feed the patient charcoal by mouth and recover the substance in the urine

Treatment

No single mode of treatment is applicable to all cases The method depends upon such things as the general condition of the patient, the nature of the disease in the intestine, the status of the urinary tract, and the duration of the condition In general it is agreed that a multistaged procedure is best

Mayo and Blunt[5] recommended preliminary colostomy in cases of vesicosigmoidal fistula In two patients in whom the fistula was divided and the opening in the sigmoid and bladder closed, there was a recurrence of previous signs and symptoms In 46 patients treated by a preliminary colostomy the mortality was lowest (6 5%) Balch reported 19 cases of vesicosigmoidal fistula and noted that the patients in whom attempts were made to close the fistula before colostomy was performed did poorly Rankin and Brown[14] stated that 'any attempts to locally excise the fistula without bowel resection is doomed to failure' and stressed the value of preliminary colostomy This stand is also advocated by Kellogg[1A] and by Sutton[4]

It is now the accepted practice to perform the colostomy first and then resect the intestine and fistulous area of the bladder It is not always necessary to perform a cystostomy The bladder can be closed primarily and drained per urethra

The length of time elapsing between colostomy and resection depends upon the general improvement of the patient Occasionally, the fistula may close spontaneously after the fecal stream is diverted, but this does not preclude further section In the poor-risk patient or in the patient with inoperable carcinoma a permanent colostomy may be adequate palliation In one of our reported cases (case 5), the elderly patient refused further surgery after the colostomy and was content to live in that manner

Mayo and Miller[15] reviewed 88 cases of sigmoidovesical fistula treated surgically at the Mayo Clinic and reported that 35 patients were cured, 5 improved, 4 unimproved, and 4 had recurrence There were 26 deaths related to the primary disease or operation The above statistics substantiate the fact that this condition is a serious disease and requires diligent and long term care

Report of Cases

CASE 1 —A 55-year-old woman was admitted to the hospital on March 31, 1949, with a *complaint of chills and fever and* nausea and vomiting for the previous three months In addition, there was marked shortness of breath and orthopnea The patient was treated at home with penicillin, but the fever recurred The patient also complained of low back pain and pain in the bladder region after voiding She stated that she had seen gas bubbles in her urine since October, 1948 She had a history of rheumatic heart disease with congenital septal defect

Physical examination revealed an acutely ill, malnourished female The temperature was 103 F (39 4 C) The blood pressure was 115/70 mm Hg The patient was dyspneic and orthopneic There were rales at both bases and a *systolic* murmur in the pulmonic area Abdominal examination revealed a tender mass in the suprapubic area *On* pelvic examination there was a rectovaginal fistula There was also generalized immobility of the pelvic structures suggesting a pelvic abscess or neoplasm There were gas bubbles in the catheterized bladder urine The urine appeared grossly cloudy and had a fecal odor Microscopic examination revealed numerous pus cells, and there was 1+ albumin The urine culture revealed Escherichia coli and Proteus vulgaris A barium enema revealed diverticulosis and diverticulitis of the sigmoid colon Cystoscopy was not performed She was placed on a regimen of streptomycin and daily creosol douches A preoperative diagnosis of diverticulitis of the sigmoid with abscess formation was made

On April 7, 1949 a pelvic puncture was attempted through Douglas pouch and the anterior bladder wall, but the mass was noted to be firm On April 11, 1949, an exploratory laparotomy was performed and a large mass involving the sigmoid and bladder was noted in the pelvis A transverse colostomy was performed The patient was discharged on April 24, 1949

She was readmitted on June 5, 1949, and on June 9, 1949 a rectosigmoid resection and telescoping anatomosis were performed Pathological examination revealed diverticulitis with peridiverticulitis and abscess formation involving the bladder Postoperatively, she was placed on therapy with bishydroxycoumarin (Dicumarol) She developed a purulent drainage from the lower angle of the wound, and a large abscess was opened Methylene blue was put into the distal loop of the colostomy and came through the drainage area The drainage gradually diminished On July 5, 1949, the colostomy was closed On July 8, 1949, the patient died suddenly, and the presumptive diagnosis was pulmonary embolus An autopsy was not performed

CASE 2 —A 59-year-old man was admitted to the hospital on Oct 31, 1947, with the complaint of hematuria The patient had noted bloody urine for the first time two weeks prior to admission One year before that, a bladder tumor (papilloma) had been resected transurethrally at another hospital He stated that he had had frequency, urgency and nocturia for five years

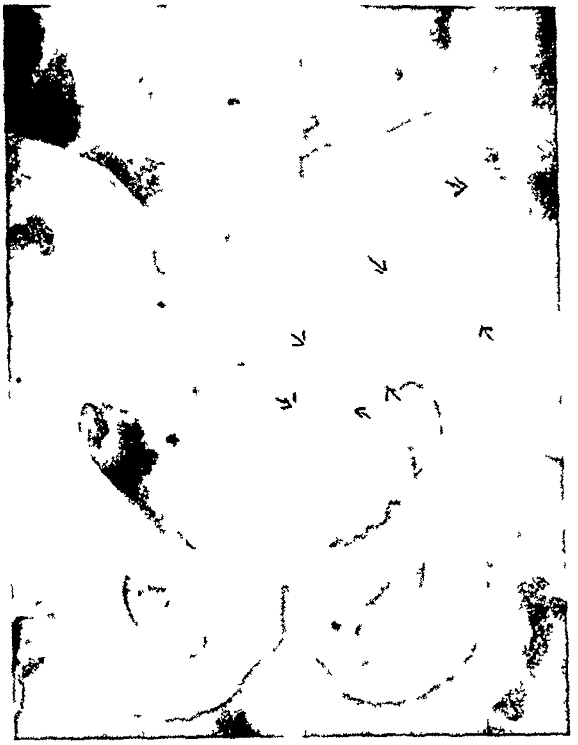

Fig 1 (case 2) —Cystogram showing dye (3 5% sodium iodide) passing from bladder into rectosigmoid

The history and system review were essentially negative except for chronic constipation for the past 12 years for which he had taken laxatives regularly

Physical examination revealed a well-developed well nourished, elderly male not acutely ill The temperature was 99 8 F (37 7 C), and the blood pressure was 108/80 mm Hg Heart and lungs were normal The bladder was distended to the umbilicus Examination of the genitals revealed a dark bloody discharge from the penis At the base of the penis was a red tender area The presumptive diagnosis was (1) recurrent bladder tumor, (2) abscess of the penis, (3) benign prostatic hypertrophy, grade 1, and (4) right inguinal hernia The urine contained 15 white blood cells per high-power field

On admission to the hospital, the patient was catheterized and two emesis basins full of bloody urine with new and old clots were obtained Cystoscopy was performed shortly afterward, and a small vesical calculus with diffuse cystitis was noted Retrograde pyelography disclosed normal kidneys The abscess in the penis was incised and drained Thereafter, the patient continued to show pus in the urine Urine culture revealed Esch coli The patient also ran a spiking fever and on the third day after cystoscopy he began to drain fecal matter per catheter A cystogram was performed, and the dye passed from the bladder into the sigmoid (fig 1) Cystoscopy was repeated, and the findings were unchanged No definite fistulous opening was seen Findings from a gastrointestinal series and a barium enema were negative

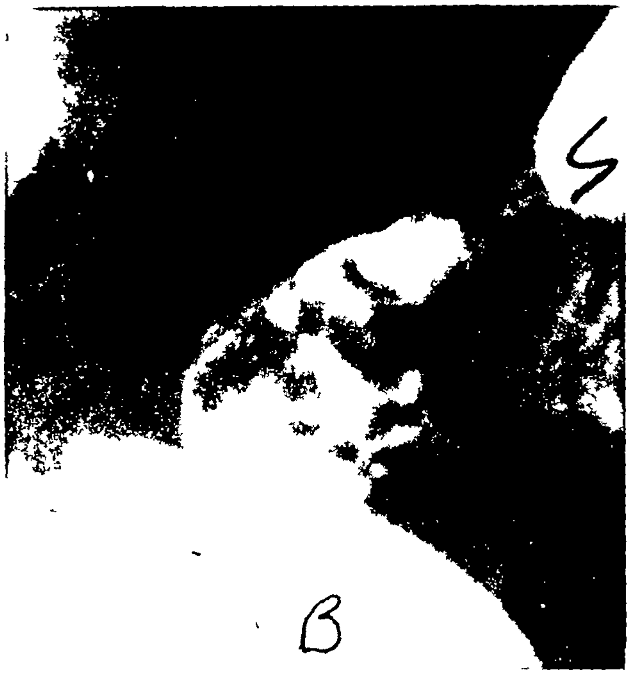

Fig 2 (case 3) —Barium enema showing fistulous tract (F) extending from sigmoid (S) down to bladder (B)

The patient was prepared for operation by the use of a Miller-Abbott tube and the administration of phthalylsulfathiazole (Sulfathalidine) At operation, the sigmoid was found adherent to the bladder and markedly inflamed The involved portion of the sigmoid and bladder were removed in toto, and end-to-end anastomosis was performed on the sigmoid A suprapubic cystostomy was also performed The pathology report indicated a diverticulitis of the colon with perforation, abscess formation and vesicosigmoid fistula The patient made an uneventful recovery and was discharged as cured

Case 3 —A 52-year-old woman was first admitted to the hospital on Oct 23, 1950 with the complaint of pain in the left lower quadrant of the abdomen of two weeks duration She had also noticed pain in the left costovertebral angle with radiation into the left groin At times the pain was quite sharp and colicky in nature During this time the patient had occasional nausea and vomiting There was no change in bowel habits She also had epigastric pain and anorexia There was weakness and generalized malaise She had had vaginal bleeding on two occasions in the past five years A gynecologic operation, whose exact nature could not be determined had been performed two years before at another hospital She had had an appendectomy 30 years before The patient had noticed moderate frequency of urination, slight burning on urination and nocturia (she urinated three or four times nightly) for several years

Physical examination disclosed the patient to be well developed, well nourished, and chronically ill The heart and lungs were normal Blood pressure was 96/70 mm Hg Examination of the abdomen revealed tenderness in the left costovertebral angle and along the left side of the abdomen There was also tenderness in the midline above the symphysis There was also an irregular mass palpable in the left lower quadrant Urinalysis was negative The serum urea level was 31 mg per 100 cc The hematocrit reading was 41% The white blood cell count was 9 750 per cubic millimeter, with a normal differential count Cystoscopy revealed a filling defect caused by pressure on the posterior wall of the bladder from without There was no evidence of ulceration or fistula formation in the bladder The findings on bilateral retrograde pyelograms were negative A barium enema revealed diverticulitis and inflammatory abscess extending into the bladder with possible intrinsic polyps in the rectum (fig 2)

An exploratory laparotomy was performed, and a mass th size of an orange was found lying on the anterior surface of th uterus The mass involved the sigmoid and bladder and lef adnexa, and a presumptive diagnosis of diverticulitis with abscess formation and incipient intestinovesical fistula was made A colostomy was performed The patient made an uneventfu recovery

She was readmitted on Dec 31, 1950, and a resection of th sigmoid colon and left adnexa was performed The mass wa freed from the bladder by blunt and sharp dissection and di not perforate through the wall of the bladder Examination o the excised specimen revealed marked diverticulitis and peridiverticulitis with abscess formation of the sigmoid colon Th patient made an uneventful recovery She was readmitted o Feb 8, 1951, at that time closure of the colostomy was performed The patient was discharged as cured

Case 4 —A 49-year-old man was admitted to the hospital o June 5, 1953, with the chief complaint of pain in the lowe part of the abdomen Four days prior to admission the patien had noted the sudden onset of pain in the left lower quadra of the abdomen with a feeling of pressure over the bladder an urgent desire to urinate There was no incontinence, hematuria or pyuria The pain continued until the day prior to admission At that time the pain in the left lower quadrant of the abdomen became quite severe and colicky and was accompanied by nausea and vomiting There was no diarrhea or blood in the stool

Physical examination revealed a well developed, well nourished, middle-aged male who appeared to be very uncomfortable because of pain in the abdomen The blood pressure was 142/90 mm Hg, the pulse rate was 100 and the respiration rate 16 per minute Examination of the abdomen revealed tenderness in the left lower quadrant with rebound There was no mass palpable Rectal examination was negative The genitals were normal The bladder did not appear to be distended Cystoscopy was not performed, but cystography revealed a filling defect on the superior aspect of the bladder with displacement of the entire bladder to the left Excretory urography was negative The urine showed 5 to 10 white blood cells per high power

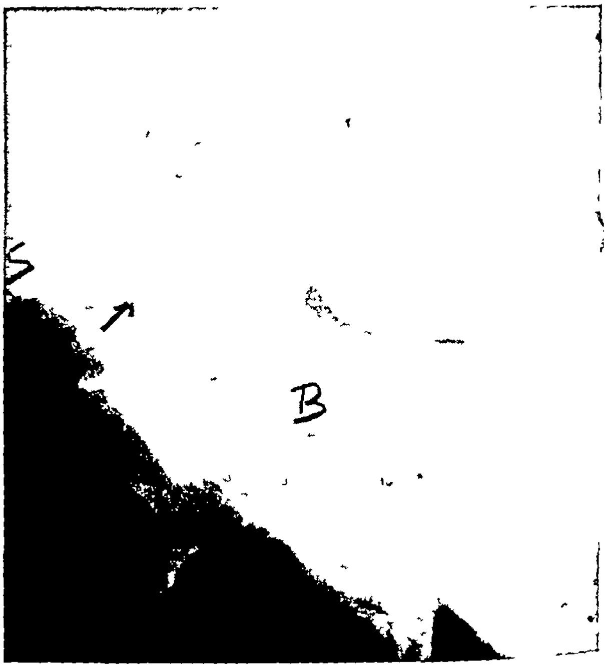

Fig 3 (case 4) —Barium enema (lateral oblique film) showing fistulous tract (F) between sigmoid (S) and bladder (B) field, with 1+ albumin A barium enema was performed and revealed diverticulitis and diverticulosis of the sigmoid colon with a fistulous tract extending into the bladder (fig 3)

On June 8, 1953, an exploratory laparotomy was performed, and in the midportion of the sigmoid there was an abscess surrounding an area of presumed ruptured diverticulum extending down toward the bladder and firmly adherent to the bladder There was marked induration of the mesentery A transverse colostomy was performed On June 10, 1953, the patient passed gas through the urethra Methylene blue was instilled in the distal loop of the colostomy and appeared in the urine This established diagnosis of intestinovesical fistula The postoperative course was stormy, with high fever The patient was given chlortetracycline (Aureomycin) hydrochloride and neomycin sulfate, and his fever subsided He was discharged on June 25, 1953

On Sept 23, 1953 the patient was readmitted for operation, which disclosed that the sigmoid colon was involved in an inflammatory mass The sigmoid was resected and an end-to end anastomosis performed The patient made an uneventful recovery and was discharged on Oct 1, 1953 He was readmitted to the hospital on Dec 27, 1953 for closure of the colostomy This was done without incident, and the patient was discharged on Jan 6, 1954, as cured

Case 5 —A 70 year-old man was admitted to the hospital on Aug 3, 1953 with the chief complaint of anorexia, lethargy, and weight loss for the past five months He had also noted intermittent diarrhea which at times became debilitating For several days prior to hospital admission he had had severe pain in the left lower quadrant and progressive difficulty in voiding His stools had been very watery for a few days prior to admission There were no bloody or tarry stools No hematuria was observed Language difficulty made it almost impossible to obtain an accurate history from this patient

Physical examination revealed him to be an elderly male who appeared acutely ill, dehydrated, and in a toxic condition The blood pressure was 80/60 mm Hg, the temperature was 101 2 F (38 4 C), and the pulse rate was 96 Examination of the abdomen revealed marked distention with rebound tenderness in the left lower quadrant There was no mass Borborygmi were heard The genitals were normal Rectal examination revealed a 2+ benign enlargement of the prostate On the anterior wall of the rectum there was a firm, irregular shelf-like mass, which was not tender The patient was catheterized, and an indwelling Foley catheter was inserted About 300 cc of foul-smelling urine, with a fecal odor, was obtained Proctoscopic examination to a distance of 17 cm was negative for pathology The barium enema was performed, and on fluoroscopic and radiographic examination it was disclosed that there was a narrowing in the region of the sigmoid The barium seemed to escape through a fistulous tract into the bladder (fig 4) Several diverticula were present in the sigmoid

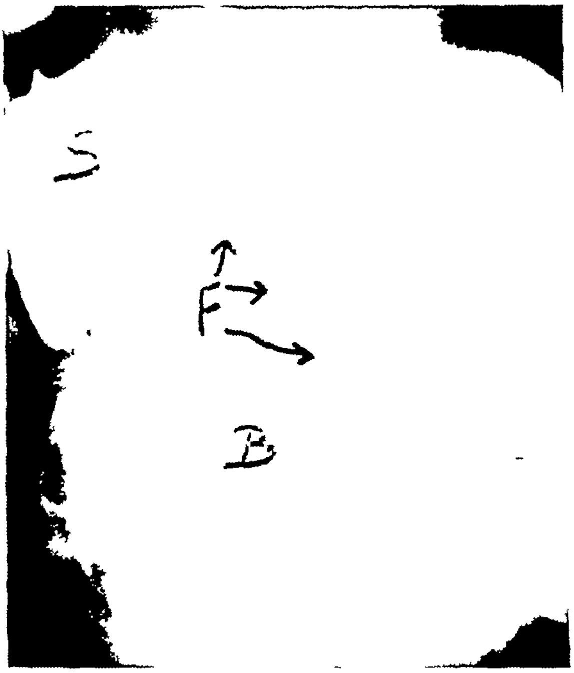

Fig 4 (case 5) —Barium enema (lateral oblique film) showing fistulous tract (F) between sigmoid (S) and bladder (B)

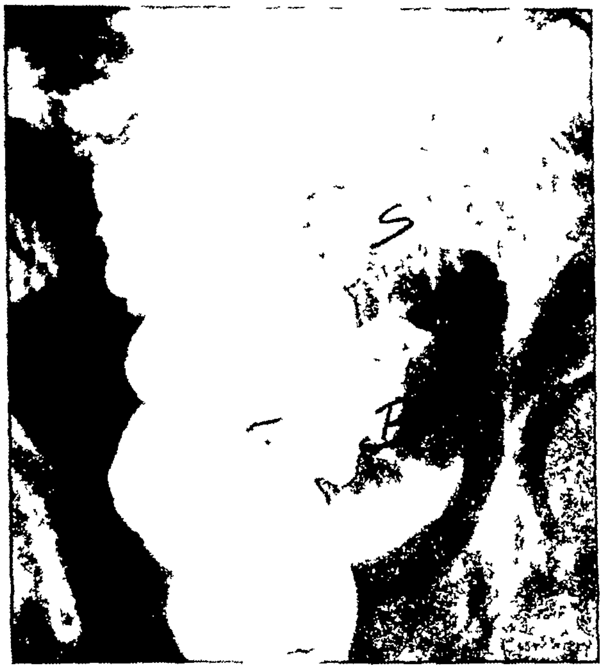

Fig 5 (case 6) —Barium enema (lateral oblique film) showing fistulous tract (F) between sigmoid (S) and bladder (B)

Excretory urography was performed and revealed prompt bilateral excretion, but the outline of the upper urinary tracts was poor in detail Urinalysis revealed urine with a fecal odor with 4+ albumin The urine contained innumerable red blood cells, white blood cells, and casts Culture of the urine revealed Esch coli

On Aug 6, 1953, operation disclosed a firm, lemon sized mass in the region of the sigmoid above the peritoneal reflection There was free fluid in the abdomen The large intestine proximal to the lesion was dilated, edematous and reddened There was a firm mass adherent to the posterior wall of the bladder A transverse colostomy was performed The patient had a prolonged convalescence with fever and protracted anemia He developed a leukopenia and neutropenia and was given multiple blood transfusions Uremia and pneumonitis ensued but cleared with intensive treatment

On Aug 21, 1953, cystoscopy was performed and enlarged prostatic lateral lobes were observed There was bullous edema and tumefaction in the right midline on the posterior lateral wall On Sept 4, 1953, the barium enema was repeated and the retrograde flow of barium failed to show the fistula On Sept 21, 1953, cystoscopy was repeated and essentially the same findings noted On Sept 23, 1953 excretory urography was performed and the left genitourinary tract failed to visualize On Oct 14, 1953, a barium enema was performed that showed diverticulitis and diverticulosis of the sigmoid and a perforated diverticulum producing a fistulous tract leading to the bladder The patient's condition improved, and further surgery was advised but refused He was discharged with the colostomy functioning He failed to return for further observation

Case 6 —A 51-year-old man was first admitted to the hospital on April 27, 1954, with the complaint of having passed dark brown urine for three months The urine had an odor of stool One month prior to admission, he had begun to notice that he had frequency and nocturia and intermittent low back pain The review of the other systems was negative

Physical examination revealed a well developed, well-nourished middle-aged male not acutely ill The blood pressure was 130/80 mm Hg There was a questionable mass in the left lower quadrant in the region of the large intestine, which was tender The genital organs were normal Rectal examination was essentially negative Excretory urography revealed normal pelves, calyces and ureters on both sides There was a pressure defect on the fundus of the bladder that appeared to be due to an extrinsic mass On April 28, 1954 cystoscopy revealed the bladder to be inflamed, and on the left side there was a mass extending from the vesical neck onto the posterior wall with marked bullous edema No definite fistulous tract could be seen A barium enema was performed and revealed a fistulous tract between the terminal ileum and the sigmoid and between the sigmoid and bladder (fig 5) and diverticulitis of the sigmoid and distal third of the descending colon

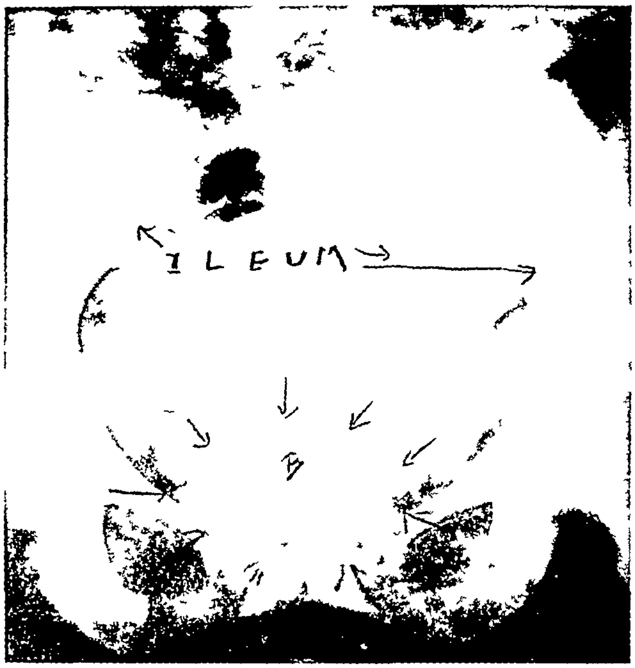

Fig 6 (case 7)—Cystogram showing dye (3 5% sodium iodide) passing from bladder (B) into ileum (I)

On May 11, 1954 a transverse colostomy was performed, and during operation a large inflammatory mass was found incorporating the sigmoid colon bladder and small intestine On Aug 11 1955, the patient was readmitted to the hospital At operation, the sigmoid was removed after the small intestine was freed up and a sigmoidosigmoidostomy and a suprapubic cystostomy were performed The small intestine and omentum were markedly adherent to the mass When the sigmoid colon was opened in the excised specimen a probe could be passed through a fistulous tract into a portion of the excised bladder The patient had an uneventful postoperative course On Sept 27 1955, the patient was readmitted to the hospital for closure of the colostomy and had an uneventful course thereafter

Case 7—A 54-year-old woman was first admitted to the hospital on Feb 3, 1955 She gave a history of having had a carcinoma of the cervix for which she had received radium therapy and deep x-ray therapy in 1938 She had developed a stricture of the right ureter and had been receiving periodic ureteral dilatations In 1953, there was no evidence of recurrence of the carcinoma On Sept 1, 1954, a right nephroureterectomy was performed for a massive hydropyoureter and for hydronephrosis At that time the patient had suffered from recurrent chills and fever

The patient stated that she had been passing urine per rectum for three weeks prior to her last hospital admission She had also passed scant amounts of urine through the urethra with great difficulty She had not urinated through the urethra for several days prior to her hospital admission

Physical examination revealed a fairly well developed, well nourished female, not acutely ill The blood pressure was 170/90 mm Hg, the pulse rate was 108, the temperature was 98 6 F (37 C) Examination of the abdomen revealed generalized tenderness with no masses The blood urea level was 104 mg per 100 cc The hematocrit reading was 35% The urine showed many red blood cells and a few white blood cells, with clumps and 2+ albumin Cystoscopy was unsatisfactory because of marked inflammation Excretory urography revealed the left ureter to be dilated Cystography revealed a communication between the bladder and ileum (vesicoileal fistula) (fig 6) Findings from the barium enema were negative A cystogram revealed the bladder to be trabeculated, and the dye passed readily into the ileum A small intestinal series showed the barium passing from the small intestine into the bladder (fig 7) and remaining there for more than six hours An electrocardiogram was compatible with coronary insufficiency Proctosigmoidoscopy was negative

On Feb 11, 1955, an exploratory laparotomy was performed and revealed the ileum to be adherent to the bladder The intestine was resected, exteriorized and drained, and the small intestine was reunited end to end The patient was discharged on Feb 26, 1955 She was readmitted on March 15 1955, with the complaint of generalized abdominal pain and the passing of stool in the urine A cystogram revealed a sigmoidovesical fistula at this point Excretory urography showed a marked hydronephrosis on the left with a hydroureter Abdominal operation was performed, and the intestine and a portion of the bladder to which it was attached were excised A transverse colostomy and a ureterocutaneous anastomosis on the left were performed

The patient had a very stormy postoperative course and went rapidly downhill She died with fever and septicemia on April 27, 1955 Autopsy revealed recurrent carcinoma of the cervix with extension into the uterus and bladder and a vesicosigmoid fistula There was metastasis to the liver, mesenteric lymph nodes, and intestinal tract There was generalized pelvic peritonitis

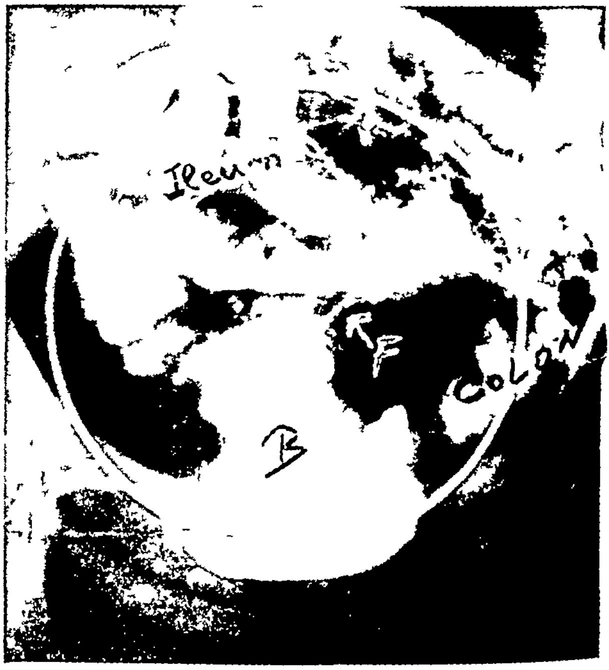

Fig 7 (case 7)—Barium enema showing fistulous tract (F) between ileum and bladder (B)

Summary and Conclusions

Five of seven patients with intestinovesical fistula were in the sixth decade of life, the youngest was 49 years of age and the oldest 70 years Four were males and three females The etiological condition responsi ble for the intestinovesical fistula was, in six cases diverticulitis with abscess formation extending downward and into the bladder in the remaining case the fistula was secondary to a carcinoma of the cervix A olitary fistula was present between the sigmoid and he bladder in the five cases due to diverticulitis and accompanying abscess formation In four of these cases the abscess opening was located in the posterior wall of the bladder in or adjacent to the trigone In one case (case 3) true fistula formation was not demonstrated in the bladder as the abscess from the diverticulitis extended down to but not through the bladder wall thus the diagnosis is a presumptive one and the condition may be regarded as being diagnosed in the prefistulous or incipient stage One patient (case 6) also had a fistula between the sigmoid and ileum

A correct preoperative diagnosis was established in five cases (cases 1 2 5 6 and 7), in each of which fecal particles were seen in the urine The fistulous communication between the bladder and sigmoid was demonstrated by cystography i e passage of dye from the bladder into the intestine in two cases (cases and 7) and by passage of barium from the intestine into the bladder in four cases (cases 3 4 5 and 6)

Operative treatment was carried out in each case with only two mortalities the patient in case 1 died of pulmonary embolus on the third postoperative day after closure of colostomy and the one in case 7 died of septicemia after a lengthy operation consisting of a combined excision of the vesicosigmoidal fistulous tract, transverse colostomy and a ureterocutaneous anastomosis on the left One patient (age 70) obtained a good result after a transverse colostomy and refused further surgery In other cases, with the exception of case 2, multistaged operative treatment was employed consisting of (1) colostomy (2) excision of fistulous tract and resection of intestine, and (3) closure of colostomy In case 2 a one stage operation consisting of excision of fistulous tract end to end anastomosis of intestine, and suprapubic cystostomy was successfully performed A suprapubic cystostomy was employed in only one other case (case 6)

A review of the literature and personal experience with seven cases warrant the following conclusions Intestinovesical fistula is a serious condition presenting difficult problems in diagnosis and requiring a carefully planned multistaged operative treatment The condition can be classified according to the most common etiological factors in order of frequency as follows (1) inflammatory (2) neoplastic, (3) traumatic, (4) congenital and (5) foreign body In the majority of cases of intestinovesical fistula there is an associated abscess formation with extension to and communication with the bladder The diagnosis of intestinovesical fistula is suggested by the clinical history, that is, passage of gas and feces in the urine with concomitant urgency, frequency, and dysuria and the physical signs, that is, pain, tenderness, and a mass in the left lower quadrant

Cystoscopy may be of value in establishing the diagnosis In the fully developed case, edema, marked cystitis, and particulate fecal matter in the urine are usually observed but the fistulous opening is not visualized due to the bullous edema and inflammatory changes In the incipient stage, localized inflammation and edematous changes and inward bulging of the posterior bladder wall at or near the trigonal area are noted The fistulous opening may be demonstrated not infrequently by either a cystogram or barium enema Occasionally, instillation of methylene blue or sodium indigotindisulfonate (indigo carmine) into the bladder may lead to recovery of the dye in the stool Surgical treatment varies with the duration and severity of the pathological process In most instances the best results have been obtained by employing a multistaged operative plan, namely, (1) colostomy, (2) combined excision of fistulous tract and intestinal resection, and (3) closure of colostomy

The early diagnosis of diverticulitis with or without abscess formation and the institution of prompt surgical treatment will prevent the development of intestinovesical fistula Close cooperation between the gastrointestinal specialist or internist, the surgeon, the urologist, and the radiologist will insure early diagnosis and appropriate surgical treatment

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BETA-PROPIOLACTONE IN STERILIZATION OF VACCINES, TISSUE GRAFTS, AND PLASMA

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and
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• *Beta propiolactone seems to be a superior sterilizing agent for biologicals because of its capacity to inactivate a wide variety of bacteria, fungi, and viruses At the same time, this chemical has a minimal effect on proteins, avoiding final neutralization, and produces relatively nontoxic end products The rapid penetration of tissues allows safer and more homogenous tissue grafts of arteries, bone, and cartilage Although use of the product against the hepatitis viruses has not been studied, since this is yet not possible, beta-propiolactone produces plasma that will keep for long periods and will be well tolerated by patients*

The usual process of sterilization by physical or chemical methods results in radical changes in the medium or environment containing the micro-organism concerned The sterilization of biologicals, such as vaccines, tissue grafts, and plasma, involves as the first consideration, beyond that of the lethal effect on the micro-organisms, the preservation of the proteins in or near their original state In the case of vaccines, preservation of the bacterial or virus proteins in their original state should be attained as far as possible so that the resulting antigen will produce antibodies comparable to those obtained using the same organisms in the viable state In the case of plasma, denaturization of the proteins is to be avoided so that they will remain nontoxic and nonantigenic and will retain their normal in vivo functions and survival In the case of tissue grafts, it is essential to obtain nontoxic, nonantigenic material that will function without producing complications when transferred to the patient

The efficiency of heat, the most efficient and widely used physical bactericidal agent, is paralleled by the coagulation of proteins The same is true of the two bactericidal chemical agents, phenol and formalin, which are most commonly used in biological applications These chemical agents have the further disadvantage of remaining intact in the end-product and, hence, may be toxic when used in plasma, tissue grafts, or vaccines

It is well established that a number of virus infections in man are accompanied by a phase of viremia Some of these, such as serum and infectious hepatitis, produce a carrier state resulting in clinical cases of hepatitis in the recipient of such a carrier's blood With the constantly increasing utilization of blood, blood plasma, homologous tissue grafts, and vaccines, it becomes imperative to develop methods of sterilization that will insure the maximum safety and effectiveness of these various products

Over the last five years more than 500 chemical compounds have been screened,[1] with special emphasis on the finding of one that would inactivate the virus of serum hepatitis in blood and blood plasma Beta-propiolactone appears superior to other chemicals tried, and satisfactory methods of processing the biologicals have been developed and applied in a relatively large group of patients

Properties of Beta propiolactone

Beta-propiolactone was first synthesized by Johannson[2] in 1915, who used the silver salt of beta-iodopropionic acid, but Beckurts and Otto attempted to make it in 1885 Kung, in 1941, found a method of synthesizing beta-propiolactone from ketene and formalin and assigned the patent to the B F Goodrich Company Since that time the substance has been studied and produced by Gresham and co-workers[3] in the research center of the Goodrich company In 1950, beta propiolactone was furnished to us by Parke-Davis & Company for evaluation in our screening[4] All the beta propiolactone was obtained subsequently through the courtesy of Gresham and the Goodrich company

This chemical is a colorless, stable liquid in its concentrated form, but it is quite unstable in aqueous solutions It is best kept at –20 to –30 C in plastic or neutraglass sealed containers It has a specific gravity of 1 149 and is 37 5% soluble in water at 25 C It reacts readily with hydroxyl, amino, carboxyl, sulfhydryl, and phenolic groups

Beta-propiolactone has been reported[5] as a more effective sterilizing agent for a wide variety of viruses, bacteria, and fungi, including their spores (table 1) Our studies show that sterilization can be attained with concentrations of the chemical that do not denature the plasma and tissue proteins to any objectionable extent This method has already been successfully employed clinically for the sterilization of plasma, sterilization of tissue grafts, and the preparation of virus vaccines

Sterilization of Plasma

Previous publications give, in more detail, the advantages of beta-propiolactone over mechlorethamine hydrochloride (nitrogen mustard), dichlorodiemethyl sulfide (mustard gas), ethylene oxide, the photodynamic action of dyes, or ultraviolet irradiation for the inactivation of numerous viruses artificially seeded in plasma and those naturally occurring in plasma during the stage of viremia[1] Extensive studies from this laboratory also show that a wide margin of safety exists between the virucidal and the toxic concentrations of beta-propiolactone Since the hepatitis viruses have not been successfully studied in the experimental laboratory, the ultimate effectiveness of beta-propiolactone

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Read before the Section on Pathology and Physiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 12, 1956 against these agents remains in question Although plasma treated with a 0 6% solution of beta-propiolactone is nontoxic to man upon intravenous administration, this concentration is one and one-half times that necessary to inactivate the most resistant laboratory virus (that of eastern equine encephalomyelitis) and 12 times that necessary to inactivate the most sensitive virus (that of lymphocytic choriomeningitis) when these agents are seeded in plasma However, in order to maintain the integrity of the plasma proteins a 0 45% concentration of beta-propiolactone should not be exceeded Since a concentration of 0 3% of beta-propiolactone in transfusion units of icterogenic plasma is not sufficient to inactivate the last-trace quantities of hepatitis virus present the combination of beta-propiolactone and ultraviolet irradiation previously reported[6] has been extensively studied and the technique for use on large volumes elaborated

Animal experiments with the eastern equine encephalomyelitis virus clearly show that there is always an additive and often a synergistic virucidal effect with beta-propiolactone and ultraviolet irradiation[7]

The maximum degree of virus inactivation can be obtained by the use of a combination of from one-third to one-fourth of the beta-propiolactone concentration and from one-third to one fourth of the ultraviolet irradiation as when either agent is used alone What is more important is the fact that the combination can be used in marked excess of that necessary for sterilization and the integrity of the plasma proteins, as demonstrated by electrophoresis will still be maintained[7] With a wider range between the dosage necessary for sterilization and that bringing about protein alteration, the combination shown here is the most promising available method for inactivating the hepatitis virus in human plasma

Plasma treated with 0 35% solution of beta-propiolactone plus ultraviolet irradiation in the intensity recommended by the National Institutes of Health standards, produces a product that is clear amber in color, keeps for long periods, and is well tolerated by patients Over 100 units of treated plasma has been administered to infants and adults without any untoward, immediate or delayed, reactions

TABLE 1 —*Beta-propiolactone Concentration Required for in Vitro Sterilization of Micropathogens*

Pathogens	No of Pathogen Tested	Sterilizing Concentration of Beta propiolactone Gm /100 Cc
Viruses	8	0 05 to 0 30
Bacteria		
Vegetative forms		0 1 to 0 20
Spore forms	[illegible]	0 5 to 0 75
Fungi		0 25 to 0 50

* Viruses require a lower concentration for sterilization than either bacteria or fungi Spore forms require the highest concentration of beta propiolactone for sterilization

Sterilization of Grafts—Arteries, Bones, and Cartilage

The problems confronting surgeons who are interested in a tissue bank are, first, how to obtain sufficient arteries, bone, and cartilage to meet the demand of todays advanced techniques in surgery and, second when such tissues are available, how to be certain that these are free from infectious micro-organisms Arteries can only be obtained from dead persons by special grants from relatives Bone and cartilage can be obtained from the living in limited quantities, whereas an adequate supply can be obtained from dead persons if there is efficient sterilization

The actual use of tissue grafts sterilized by beta-propiolactone is based on extensive animal experiments[8] Arteries and bones were placed in heavily seeded material, incubated for two hours at 37 C treated, and then transferred to suitable mediums and/or animals to enhance the growth of any micro-organisms that might survive the sterilization

TABLE 2 —*Depth of Tissue Sterilization with One Per Cent Solution of Beta-propiolactone After Bacteremia and Viremia in Susceptible Hosts*

Conditions		Result —Sterilization of Tissue Thickness Mm				Controls	
Pathogen	Susceptible Host	Artery	Bone	Kidney	Liver	Bacterial Count*	Virus Titer†
Escherichia coli	Rabbit	3	6	3	3	8×10^6	
Pneumococcus (type 3)	Mouse	[illegible]		3		9×10	
MM strain encephalomyocarditis virus	Mouse	3	[illegible]	3	3		3 6
Lymphocytic choriomeningitis virus	Guinea pig	3	3	3	3		3 9
Eastern equine encephalomyelitis virus	Rabbit	3	[illegible]	3	3		4 4

* Count per gram of tissue in kidney tissue

† Virus titer LD50 is the reciprocal of negative logarithm (base 10) of virus dilution Tissue sterilization can be accomplished at a depth of 3 mm or less for compact tissue and up to 6 mm for cancellous bone In virus studies thickness of bone did not exceed 3 mm

In a second group of experiments, tissue slices were obtained from infected animals during the stage of bacteremia or viremia[9] These specimens included arteries, bone kidney, and liver ranging from 1 to 9 mm in thickness which were treated with 1% solution of beta-propiolactone (table 2) The bone samples were sawed from ribs giving an outer, thin compact layer and the cancellous inner portion

Tissue treated with 1% solution of beta-propiolactone appears well preserved upon microscopic examination However its failure to grow in tissue culture shows it is not viable It has been found that certain tissues need not be viable to function temporarily The nonviable tissues that have proved acceptable are arteries, bone, and cartilage providing they are nonantigenic and sterile

From October, 1954, to March, 1956, arteries sterilized with beta-propiolactone have been used at the Henry Ford Hospital in 120 operations with good results[10] This use was preceded by two years of experimental work in dogs[8] Since July, 1955, bone and cartilage have been used in over 30 operations with equal success

Antigenicity of Beta-propiolactone-Inactivated Virus Vaccines

In the preparation of inactivated virus vaccines, the margin between complete inactivation and the amount of antigenicity retained is so narrow that the search for more satisfactory methods has been intense In a previous report[11] and in studies in progress, beta-propiolactone appears to have advantages over other chemicals for the preparation of inactivated virus vaccines

It inactivates viruses completely and irreversibly in from 10 to 15 minutes at 37 C, whereas inactivation with formalin and phenol requires several days under the same conditions Beta-propiolactone can be added in excess of the minimal, effective, virucidal concentration with a margin of safety between the complete inactivation of viruses and loss of antigenicity Moreover, significantly higher degrees of antigenicity have been obtained with beta-propiolactone-inactivated virus vaccines than with phenol-inactivated or formalin-inactivated vaccines under parallel conditions

Formalin-inactivated and phenol-inactivated viruses of murine encephalomyocarditis, eastern equine encephalomyelitis, and rabies were compared with the same viruses inactivated with beta-propiolactone Formaldehyde (0 12% solution) inactivated the MM virus in 24 hours, while beta-propiolactone (0 2% solution) inactivated the same virus in 10 minutes No antigenicity titer could be demonstrated for the formalin-treated MM material, while material treated with a 0 2% solution of beta-propiolactone gave a titer of 10^{-2} Phenolized rabies virus gave a resistance index of less than 10 as compared with a resistance index of 125 in material treated with a 0 2% solution of beta-propiolactone Treatment with beta-propiolactone also gave an antigenic response with MM virus almost as high as with the live virus These results have been confirmed by other investigators[12]

Summary

Beta-propiolactone is a superior sterilizing agent for biologicals because of its rapid and irreversible action minimal alteration of proteins, and complete hydrolysis, obviating neutralization and toxicity Preservation of proteins and relatively nontoxic end-products of hydrocrylic and beta-chloropropionic acids makes beta-propiolactone the most promising chemical for the sterilization of blood plasma Rapid killing of bacteria and inactivation of viruses with maintenance of comparatively high antigenicity offers a method for the production of improved vaccines Activity on a wide variety of bacteria, fungi, and viruses, coupled with rapid penetration of tissues, opens the way for safer and more plentiful homogeneous tissue grafts of arteries bone, and cartilage

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Hypertension —Effective treatment of hypertensive emergencies requires an agent which will reduce the blood pressure quickly and effectively It is fortunate that a choice of drugs is available at this time However, the potency of many of these agents is such that an intimate knowledge of pharmacodynamics of them is necessary if they are to be employed with maximum efficiency and safety The very potency of many of these agents makes them dangerous if improperly employed Marked elevation in blood pressure itself, even though due to many different causes, may become a direct threat to the patient s life if not brought under immediate control This is so even though the elevated blood pressure may be only a part of the clinical syndrome Under these circumstances control of the blood pressure can become the primary therapeutic problem and, in fact, can become a life saving procedure The more important disease entities in which hypertension can become an emergency are acute nephritis, toxemia of pregnancy, hypertensive encephalopathy, pheochromocytoma, fulminating heart failure due to essential hypertension, hypertensive crisis, cerebral hemorrhage with severe hypertension, renal artery occlusion and others —J H Moyer, M D, and E W Dennis, M D, Treatment of Hypertension, *Southern Medical Journal*, June, 1956

INDUCED HYPOADRENALISM IN PATIENTS REQUIRING ORTHOPEDIC SURGERY

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• *Prolonged administration of steroids often, but not always, results in adrenocortical insufficiency It has been difficult to determine whether a patient so treated is actually devoid of adrenocortical function Elective surgery on bones and joints in such a patient should be postponed until his adrenal status is ascertained and he has been weaned away, if necessary, from the steroid The test used for this purpose consists in administering corticotropin and determining daily salt excretion during a period of constant salt intake, hypoadrenalism is likely to exist if the corticotropin fails to reduce the salt excretion and especially if it fails to induce eosinopenia and hypokalemia Ten patients who had been receiving steroids (for seven years, in one instance) underwent orthopedic surgery The above test was carried out in nine and revealed adrenal insufficiency in six The diagnosis was borne out by the occurrence of shock in four of the patients and the effectiveness of hydrocortisone given intravenously in combating it In cases of elective surgery the operation can be postponed for several months to permit weaning, but, when emergency surgery is required in a patient who has been receiving cortisone, increased amounts of steroid will be needed during and after the operation*

Hypoadrenocorticism is increasing in frequency because of the increased variety and use of steroids in the treatment of a number of diseases This has produced a growing problem for those of us who are called on to operate on such patients for injury or reconstruction of their bones and joints [1] Orthopedic surgeons in particular should be cognizant of the symptoms and management of sudden adrenocortical insufficiency during and after surgery or injury, since a number of patients who receive cortisone acetate or other steroids come under their treatment for reconstruction

Hypoadrenocorticism may result from several conditions It may be induced by the administration of steroids It results from adrenalectomy or hypophysectomy, procedures in vogue today for treatment of certain cancers, from hyperplasias of the pituitary adrenal system, and from hypertension It occurs in adrenal cortical hypofunction (Addison's disease) Finally, it may occur as a result of adrenal tuberculosis, amyloid disease, and other pathological conditions of the adrenals

Effect of Long term Use of Steroids

There are many corticosteroids on the market today Among them are cortisone, hydrocortisone, fludrohydrocortisone acetate, prednisone (Meticorten), prednisolone (Sterane), Co-Deltra (buffered prednisone), and Co-Hydeltra (buffered prednisolone) Other preparations, which include salicylates (such as Sigmagen [tablets containing prednisone, aspirin ascorbic acid, and aluminum hydroxide] and Salcort [tablets containing cortisone acetate, sodium salicylate, dried aluminum hydroxide gel, calcium ascorbate, and calcium carbonate]), are also being widely used Some confusion has been produced among doctors and patients alike by the variety of trade names for the identical steroid The fewer side-effects these steroids have, the more widely they are used However, one side-effect that has not been diminished is induced hypoadrenalism, which may result from therapy with steroids over a long period of time That these steroids are potential adrenal suppressors, causing functional and pathological adrenal atrophy, has been well established by Bennett [2] and others [3]

Diagnosis of Hypoadrenalism

Patients with hypoadrenalism who must undergo surgery may be classified into two categories First, they may have adrenocortical insufficiency but their operation may be classified as elective It can be put off until the appropriate time Second, they may have adrenocortical insufficiency at a time when injury or disease requires an emergency operation The diagnosis of hypoadrenalism in each of these cases is a difficult problem

Elective Cases —When faced with the problem of operating on a patient in whom he suspects adrenocortical insufficiency, the surgeon would like to know whether this condition actually is present Adrenal insufficiency may not be provoked until a very major stress occurs, such as an operation of great magnitude It also may occur, however, with a far less stressing incident, such as a simple manipulation of the knee with the patient under anesthesia [4]

We have had difficulty in determining whether the patient who has been receiving steroids for some length of time is actually devoid of adrenocortical function One of the indicators we have been studying is the measure of salt conservation after an intravenous infusion of corticotropin (ACTH) The amount of salt excreted in the urine per 24 hours is measured for 48 hours, during which time the salt intake is calculated and restricted to not over 3 Gm per 24-hour period During this time blood electrolytes as well as the 24-hour urinary potassium and sodium excretion are measured After the 48 hours have passed, an infusion is given of 50 mg of corticotropin in 500 cc of dextrose and water over a 4-hour period Thereupon, in the next 24 hours, at 12-hour and 24-hour periods the total uri-

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Read before the Section on Orthopedic Surgery at the 105th Annual Meeting of the American Medical Association, Chicago June 13 1956 nary salt excretion is recorded as well as the blood electrolytes If the patient has normal adrenal function, the amount of salt excreted in the urine in the 24 hours after this test will decrease by 50 to 75% of that in the control period Since the average person normally excretes about 100 mEq of salts a day per liter of urine, usually the excretion in the urine will not exceed 40 or 50 mEq per liter over the 24 hours after the infusion Therefore, if the amount excreted fails to decrease, this failure to conserve salt after the test with corticotropin should alert one to the possibility of hypoadrenalism This condition is especially likely to exist if the patient also fails, after the infusion of corticotropin, to develop hypokalemia, a slight rise in the plasma level of 17-hydroxycorticoids, and a transient eosinopenia, all of which occur in the normal person The absence of these particular changes in response to corticotropin provides a useful indicator that supportive steroid therapy may be required Clinically, the presence of asthenia and hypotension is doubly significant, especially if the patient has received adrenocortical steroids for over three months

We have used this method of assay in nine patients, and we have been able to demonstrate to our satisfaction, prior to surgery, the need for supplementary treatment during stress in six patients The successful treatment of these six patients with supportive therapy indicates either that this method of assay was useful or that the administration of corticosteroids did not harm the patient in the recovery from stress even if the supplementary steroid was not actually needed The three patients in whom the preliminary tests disclosed salt conservation after infusion of corticotropin, despite long-term treatment with cortisone, received no supplementary steroids and tolerated surgery without difficulty

Emergency Cases —A second problem, which is difficult to evaluate, occurs in the patient who must have emergency operation or treatment due to injury and in whom there may be some deficiency in pituitary or adrenal function In this instance, one is not able to examine the patient elaborately prior to surgery, and, consequently, we have found that a regimen similar to that described recently by Perlmutter[5] has been of some help to us in the subsequent management In such cases, where a history of cortisone therapy has been given, the simultaneous examination of a specimen of voided urine and of blood for sodium concentration will be useful A high degree of salt excretion and a low serum sodium level should suggest the possibility of hypoadrenalism and alert the surgeon to the need for treatment in the event of shock In emergency cases, the presence of eosinophilia, unexplainable hypotension and a high urinary volume and salt excretion indicates adrenal insufficiency

Present Series

We have collected the data on 10 patients requiring operations on the bones and joints (see table) All of the patients had been receiving cortisone or other steroids for at least four months prior to surgery One of them had also been receiving desoxycorticosterone acetate (Doca) pellets for seven years because of adrenal cortical hypofunction Two of the patients had been receiving prednisone and two, hydrocortisone orally Three additional patients were suspected of having adrenal insufficiency because of long-term corti

Occurrence and Treatment of Adrenocortical Insufficiency in Ten Orthopedic Patients Undergoing Elective or Emergency Surgery

Case No	Surgery	Age Yr	Sex	Diagnosis	Steroid Used Previously	Operation	Supplementary Management	Shock	End Result Time After Surgery
1	Elective	43	M	Pemphigus 2½ yr (osteoporosis avascular necrosis hip)	Cortisone acetate 35-1 000 mg (av 200 mg daily)	Replacement of head of femur	Cortisone salt blood	9 times in 72 hr	Living and well 4 yr
2	Elective	37	M	Adrenal cortical hypofunction (Addison disease) arthritis lumbosacral and sacroiliac joints	Desoxycorticosterone acetate (Doca) pellets 150 mg cortisone 25 mg 7 yr	Spinal fusion and sacroiliac fusion removal of plate (4 mo later)	Desoxycorticosterone cortisone hydrocortisone I V saline solution blood	none	Wound infection living and well 2 yr
3	Elective	60	M	Rheumatoid arthritis protrusio acetabuli	Cortisone mg 18 mo hydrocortisone 20 mg (stopped 3 wk prior to surgery)	Angulation resection osteotomy hip	Hydrocortisone I V cortisone prednisone (Meticorten) blood	none	Living and well 4 mo
4	Elective	57	M	Rheumatoid arthritis (severe contracture)	Hydrocortisone orally 20 mg daily 2 yr	Femoral osteotomy	Cortisone hydrocortisone I V blood	none	Living and well 18 mo
5	Elective	68	F	Rheumatoid arthritis intracapsular fracture nonunion (osteoporosis)	Hydrocortisone orally 20-40 mg 4 mo	Smith Petersen nailing Fred Thompson prosthetic replacement 6 wk later	Cortisone hydrocortisone prednisone blood	twice	Living and well 18 mo
6	Elective	54	M	Rheumatoid arthritis fracture of right hip nonunion	Hydrocortisone cortisone 50-100 mg 3 yr	Prosthetic replacement right hip	Hydrocortisone I V cortisone I M blood	none	Living and well
7	Emergency	56	M	Rheumatoid arthritis ruptured appendix (fistula [fecal] sepsis osteoporosis)	Cortisone 50 mg I M hydrocortisone intra arterially 18 mo	Appendectomy closure evisceration (2 wk later)	Hydrocortisone I V cortisone saline solution blood	3 times in 24 hr	Death (adrenal atrophy and sepsis)
8	Emergency	78	F	Rheumatoid arthritis (osteoporosis) intracapsular fracture of hip	Prednisone 20 mg 8 mo	Smith Petersen nailing of hip	Hydrocortisone I V cortisone prednisone blood	twice	Living and well 6 mo
9	Emergency	45	F	Idiopathic thrombocytopenic purpura intracapsular fracture of hip osteoporosis	Prednisone 40 mg 6 mo 10-40 mg	Knowle pins hip	Cortisone prednisone blood	none	Death 4 mo (autopsy showed normal adrenals)
10	Emergency	48	F	Osteoarthritis intracapsular fracture of hip	Prednisone 20-30 mg 9 mo hydrocortisone	Smith Petersen nailing of hip	Prednisone hydrocortisone I V	none	Living and well

sone therapy, but they did not demonstrate this condition in response to the test with corticotropin They are not included in this study

It was of great interest to note the preoperative conditions that required treatment with steroids Six persons were afflicted with rheumatoid arthritis of advanced degree, one had pemphigus, one had idiopathic thrombocytopenic purpura, one had adrenal cortical hypofunction, and one had been receiving cortisone for osteoarthritis None of the patients had received corticosteroids for less than four months Dosages ranged anywhere from 20 mg of prednisone a day for four months to 1,000 mg of cortisone a day over two years Two patients died one directly as a result of adrenal insufficiency and treatment, the other four months later of other causes We have been able to examine the adrenals of both of these patients The autopsy of the patient who died soon after operation disclosed adrenal atrophy, with both adrenals weighing less than 3 Gm There were thin cortices, with loss of the lipid substance However, in the patient with thrombocytopenic purpura who died four months after operation, the adrenals appeared normal despite the patient's having received heavy doses of prednisone for over six months up to the time of death

Six of the patients thought to have induced hypoadrenalism underwent elective surgery and four underwent emergency surgery Three of the four undergoing emergency surgery required open treatment for fractures, while the fourth, with arthritis, developed a silent ruptured appendix Operative procedures performed on the patients included insertion of Knowles pins and Smith-Peterson nails, spinal fusion, osteotomy, resection-angulation osteotomy, and prosthetic replacement of the head of the femur The ages ranged from 36 to 78 years

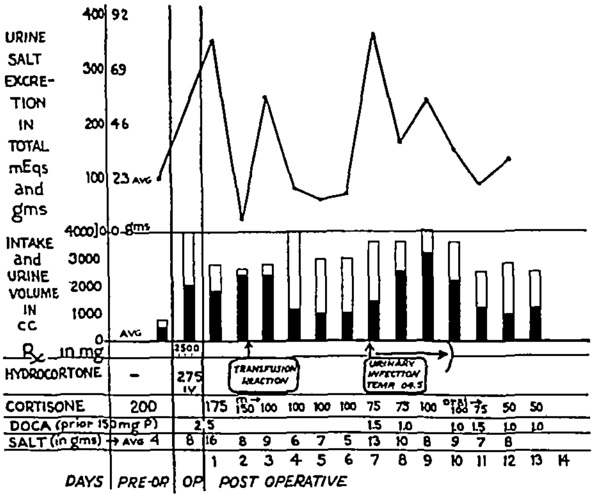

Fig 1 —Salt loss and treatment in patient with adrenal cortical hypofunction (Addison's disease) undergoing spinal fusion

Treatment consisted of increasing the amounts given of steroids in various forms and, in some cases, of salt administration during surgical stress and shortly thereafter One patient also received desoxycorticosterone Details of management varied, depending on the particular time these patients were studied For example, in 1952 a patient was carried through simply with intramuscular administration of cortisone every four hours and with salt, whereas the last patient was given cortisone intramuscularly before, hydrocortisone intravenously during, and prednisone after surgery In only one case, because of adrenal cortical hypofunction, was it necessary to use desoxycorticosterone In this patient, after a spinal fusion, a transfusion reaction and a urinary tract infection produced a sharp increase in salt excretion requiring the use of additional desoxycorticosterone, salt, and cortisone Figure 1 illustrates the rise in urinary salt excretion and the need for supplementary steroids in this patient

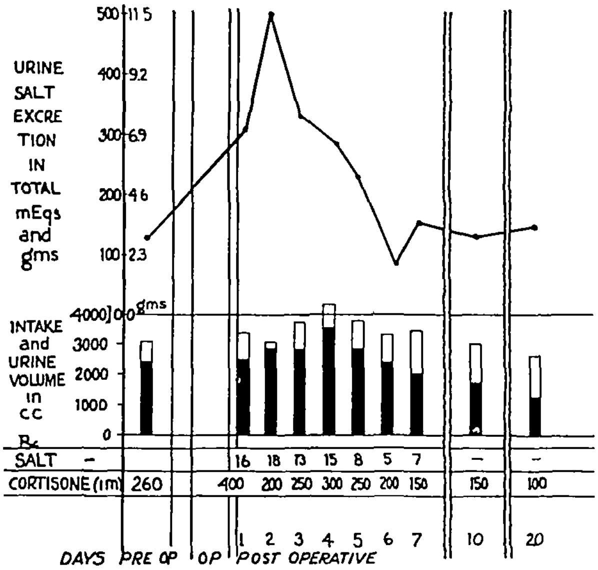

Fig 2 —Salt loss and treatment in patient with induced adrenal insufficiency undergoing replacement of head of femur

Follow-up of these patients varies from six months to four years In no instance after convalescence has there been any evidence of further adrenocortical insufficiency Except during periods of stress, practically all the patients were receiving low maintenance doses or no steroids whatsoever when last seen

Clinical Response During Early Postoperative Period—Shock occurred in 4 of the 10 patients postoperatively (This was defined as blood pressure under 80/50 mm Hg, pulse rate over 120 per minute, and clinical appearance of shock) The first patient we studied, who had pemphigus, had nine separate bouts of shock within 72 hours postoperatively, requiring heroic, constant treatment Undoubtedly, in this patient shock was due to frank insufficiency as well as to poor management The fact that this patient's urinary salt excretion was excessive can be seen in figure 2 One patient died despite all attempts at therapy Within three weeks this patient had had three separate bouts of shock Death was due to sepsis and overwhelming infection as well as to adrenal atrophy One patient, who had undergone an uncomplicated Smith-Petersen nailing, had two separate bouts of shock 24 hours after operation A second patient had two separate bouts of shock within the first 24 hours after replacement of the head of the femur The intravenous use of hydrocortisone in both of the last-mentioned patients was effective in restoring blood pressure to normal All of the patients operated on received adequate blood transfusions In none of the patients was hemorrhage the cause of shock Particular care was taken to maintain blood volume It was interesting to note that in no instance was shock present while the patient was under anesthesia, it occurred only after the patient had awakened The shock would come on in a matter of minutes and lasted in one case, as long as two hours Usually, marked improvement was noted within a half-hour after administration of hydrocortisone In addition, each of the four patients in whom shock developed had eosinophilia and an unusually high salt excretion for a number of days after surgery This, to us, was significant evidence that there was a defective adrenocortical response to the stress of surgery or injury In no instance was there evidence of renal disease or water intoxication

Treatment

The hypotensive state may come when one expects it least, namely, during the first 24 to 48 hours postoperatively It comes on with great speed and requires definitive treatment One cannot wait for corroboration by the laboratory in such cases The treatment of adrenocortical insufficiency with a corticosteroid is most important Even if one is not certain in such an emergency that the hypotension is due to adrenal depletion, we feel that hydrocortisone should be given intravenously along with other supportive treatment A high eosinophil count in the presence of severe stress (with a high amount of urinary salt excretion), as well as persistent tachycardia and hypotension despite adequate blood replacement therapy, is an indication that adrenocortical insufficiency is present We feel that the treatment of induced adrenocortical insufficiency can proceed along three lines

1 Patients undergoing emergency surgery should receive 100 mg of hydrocortisone intravenously in 500 cc of saline solution, supplementary blood, and cortisone intramuscularly in 50-to-100-mg doses 2 Patients undergoing elective surgery who require cortisone up to the time of surgery should be treated as follows Preoperatively, they should receive 100 mg of cortisone at 9 p m the evening before and at 7 a m the morning of operation During operation, they should receive 100 mg of hydrocortisone in addition to blood Postoperatively, they should receive, every 12 hours, 50 to 100 mg of cortisone the first day and 25 to 50 mg the second day Then, if the course is satisfactory, prednisone should be substituted on the third day and given daily in 20-mg doses for three days, and the doses should then be tapered off 3 For patients undergoing elective surgery who do not require steroids, the surgery should be put off for three months while steroid administration is tapered off and the patient's adrenal function is studied

Response to the first two regimens described indicates that the assumption of adrenocortical insufficiency is correct, although actual proof of this may be difficult However, we feel that, since it is only a short-term method of treatment bolstered by continuing intramuscular administration of steroids, the danger of infection or failure in wound healing is quite remote This is particularly true in operations on extremities, where sepsis is less catastrophic, rather than in operations on the intestine However, high doses of cortisone will interfere with repair, and, therefore, one should take the patient off this regimen as quickly as possible[6] In this particular series, infection occurred in only one patient, when pyelitis, cystitis, and wound infection developed in the patient with adrenal cortical hypofunction

Long-term prednisone therapy did not produce pathologically detectable adrenal atrophy in the patient with idiopathic thrombocytopenic purpura, who came to autopsy Whether functional atrophy was present is not known, as this patient was operated on for a fracture and was not studied preoperatively

Summary and Conclusions

There are a great many steroids on the market today that may cause adrenocortical insufficiency if they have been used for a long time prior to surgery It is important to know whether adrenocortical insufficiency occurs, as it produces shock and is easily manageable Therefore, each patient should be closely questioned for pretreatment with a corticosteroid The use of a salt-excretion test after infusion of corticotropin has been of some value preoperatively as an indicator of adrenocortical insufficiency and, thus, of the need for supplementary treatment

Ten patients who had been receiving cortisone acetate for a sufficient amount of time to produce in some of them adrenocortical insufficiency underwent operation In six of nine patients in whom a preoperative test with corticotropin was utilized, the failure to conserve salt in addition to the failure to develop eosinopenia indicated the need for supportive therapy, and these patients were managed on such a program during surgery with a minimum of discomfort One patient on long-term corticosteroid therapy did not present evidence of adrenocortical insufficiency at autopsy, while still another did produce evidence of this Accordingly, adrenocortical insufficiency often, but not always, results from prolonged administration of steroids

One should test for adrenocortical insufficiency rather than take its presence for granted prior to surgery Operations on any patients undergoing elective procedures on the bones and joints should be postponed, therefore, until an assay to rule out adrenocortical insufficiency has been undertaken A patient who has been receiving cortisone or another corticosteroid for any length of time and who requires surgery should be weaned away from the steroid for several months and then have surgery performed When a patient has been receiving cortisone, however, because of other factors and when emergency surgery is required, treatment should consist of administration of increased amounts of cortisone and hydrocortisone during and after surgery, as needed, until the patient's condition becomes stable

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Dr Robert Kaufman, New York, gave permission to report case 9

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THE NATURAL HISTORY OF HERPES ZOSTER

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• *The course of herpes zoster was studied in a series of 206 patients that included infants and octogenarians There were 32 patients under the age of 20 in 30 of these (94%) the condition cleared up in 14 days or less The infection was more severe and prolonged in older patients In four elderly patients symptoms persisted six months or longer The relative frequency with which the various parts of the nervous system were involved varied from youth to old age No instance of involvement of the ophthalmic division of the trigeminal nerve was observed in patients under the age of 20, but ocular complications did not appear to be related to the aging process Postherpetic neuralgia did not occur in patients under 20 but was frequent in patients over 50 Sex, race, and season did not perceptibly influence the incidence of infection in this series*

Herpes zoster is an acute, self-limited disease of infectious origin It is characterized by grouped vesicular lesions on an erythematous base distributed over several dermatomes as well as, in some cases, by a systemic reaction This study of the incidence, duration, distribution, and complications was undertaken to establish clearly the natural history of the disease Impressions gained from the more severe reactions associated with herpes zoster have tended to color the picture unfavorably As a result of these impressions, the literature is crowded with many reports of treatments advocated to alleviate pain and shorten the course of the infection Jadassohn[1] suggested the benign nature of herpes zoster in his review, but, until recently no attempts have been made to chart its natural course It is hoped that this study will serve as a yardstick to evaluate the future claims for therapeutic success in patients with this infection

The majority of the 206 cases for this analysis were chosen from the dermatology and ophthalmology departments of a general hospital (Hospital of the University of Pennsylvania, Philadelphia) and the outpatient department of a pediatric hospital (Children's Hospital of Philadelphia) over a 15-year period By surveying a pediatric hospital and an ophthalmology clinic, we naturally increase the number of children and the incidence of ophthalmic involvement We felt that this would give a more valid picture of the infection than a study of cases selected from a dermatology clinic alone, and that this was a valid assumption is shown by a comparison of the age groups in our series with the percentage of the population of Philadelphia in the various age groups

In analysis of the data the number of cases in the study of any one facet of the infection varies according to the information that was available on the various cases The infection was considered to have cleared when all crusts had fallen off leaving erythematous, macular lesions The postinfectious inflammatory reaction on the skin was not considered part of the acute infection in the evaluation of the length of the infection Neuralgia following herpes zoster was defined as any subjective, painful sensation that persisted after the acute phase of the infection Treatment consisted of a number of nonspecific measures and, therefore, did not enter into the data

Etiology

Virological studies have established clearly the similarity of the infectious agents in chickenpox and herpes zoster The elementary bodies seen under the electron microscope are rounded or brick-shaped and measure approximately 210 by 243 mμ They are most numerous during the first 12 to 24 hours and decrease rapidly so that by 72 hours they are practically nonexistent The virus particles from chickenpox and herpes zoster are indistinguishable in all physical appearances Von Bokay[2] suggested the close relationship between the two after observing cases of chickenpox arising after contact with herpes zoster Since then, many reports of chickenpox occurring in persons who are in contact with patients with herpes zoster have been reported, while the reverse has been much less commonly observed In this connection, the British medical research council reported 20 outbreaks of chickenpox instituted by cases of herpes zoster in boarding schools for boys during a five-year period

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Read before the Section on Dermatology at the 105th Annual Meeting of the American Medical Association Chicago June 12 1956

Kundratitz[3] and Bruusgaard[4] have observed that the intradermal injection of fluid from fresh vesicles of herpes zoster in children under 6 years of age will produce localized lesions of clinical chickenpox in 9 to 12 days after inoculation All adults and children with a previous history of chickenpox fail to develop lesions after inoculation Complement-fixation reactions with herpes zoster fluid or chickenpox crusts as an antigen and convalescent serum show cross fixation of complement between the two diseases In addition, convalescent serum produces cross agglutination of elementary bodies under the electron microscope

Herpes zoster is classified as spontaneous (primary) or symptomatic (secondary) depending on whether or not there is a predisposing factor The majority of cases are of the primary variety, in which no known causative factor triggers the infection

In this series, one case of herpes zoster was associated with a lymphoblastoma In addition, symptomatic (secondary) herpes zoster has been recorded occurring after a variety of traumas, these include spinal puncture, intramuscular injections, x-ray therapy, and administration of arsenic The present study does not suggest a statistically valid correlation with any trigger mechanism However, the possibility that traumatic factors may activate a latent virus is suggested by the observation of 16 cases of herpes zoster among 406 patients with carcinoma of the breast (12 of the 16 had metastases)[5]

No information concerning the incubation period of the virus was obtained from the analysis of the data The most valid information concerning this is provided by the human inoculation experiments in which a period of 7 to 14 days elapsed between the injection of herpes zoster fluid and the production of a reaction[6]

Clinical Picture

Herpes zoster infections may generally be divided into three general groups, according to the symptoms (1) those associated with involvement of the cutaneous system, (2) those associated with involvement of the nervous system, and (3) those associated with a generalized systemic response to the infection

The skin lesions typically appear first as erythematous papules, which progress to vesicles within 12 to 24 hours and to pustules in 72 hours When pustulation appears, the surrounding erythema begins to subside, and in seven to eight days the pustules begin to dry Crust formation occurs in 10 to 12 days, and the crusts fall off in 2 to 3 weeks In very mild infections, the cutaneous lesions may remain as erythematous maculopapules and rapidly regress within 7 to 10 days without vesicles appearing In an occasional case, the cutaneous reaction is so severe that the lesions become gangrenous and weeks are required for complete healing The cutaneous reaction characteristically involves one or more dermatomes spreading in a band-like manner Unilateral segmental involvement is the rule, although bilateral involvement does occur The latter occurred in less than 0 5% of the cases in this series The grouped vesicles frequently appear on the skin over the proximal portion of the involved nerve root and spread distally The thoracic segments are most frequently involved, but any area of the skin or mucous membrane may be affected

Involvement of the nervous system was associated with some variety of pain in 66% of the patients in this study The pain associated with the infection may appear as a prodromal symptom, during the acute infection, or after the inflammatory reaction on the skin has subsided It is usually categorized by the patient as pruritic, stabbing, burning, or aching in nature and can be constant or intermittent The pain is evanescent in most patients but is quite persistent in others and seems to bear no relation to the severity of the skin involvement Prodromal pain is not uncommon four to five days prior to the skin changes, but occasionally a segmental burning pain lasts for 10 to 14 days without obvious skin lesions On close inspection, a faint macular erythematous eruption may be seen as the only cutaneous manifestation, although the regional lymph nodes are usually enlarged and tender

Systemic response to the infection usually consists of headache malaise, nausea, temperature elevation stiff neck, and regional lymphadenopathy In this study, a systemic reaction was observed in 5 8% of the cases In our experience, this type of response is more common in the pediatric age group, only one of our patients with this reaction was an adult

Two patients gave a history of previous episodes of herpes zoster, one occurring in the same distribution Interpretation of the history is difficult because of the occasional tendency of herpes simplex infection to have a zosteriform distribution Four patients (2%), aged 55, 62, 72, and 82 years, developed a generalized vesicular eruption The eruption was associated with different segments (ophthalmic, cervicothoracic, lumbar) The vesicles appeared over a 48-hour period in two patients and cleared in two weeks, while in the third patient, aged 72 years, the vesicles appeared over a seven day period and the eruption required five weeks to clear From this study, we conclude that herpes zoster generalisatus is uncommon and appears to be most frequent in older age groups

Incidence

We have made no attempt to evaluate the percentage of cases of herpes zoster in the total number of admissions to a dermatology clinic We suspect, however, that the infection is significantly more common than the reported frequency of 0 5 to 2% The layman can easily make the diagnosis, and many persons with the disease never seek medical care

Results similar to those that we would expect in a study of the true incidence of herpes zoster infection were obtained in the study of the incidence of herpes simplex in 1,000 families In that study,[7] the actual incidence of apparent infection in the families studied was found to be 15%, in contrast to less than 1% incidence in the total number of patients seeking medical care in an outpatient study

Climate —No climate nor country seems to be free from herpes zoster Some reports have suggested a seasonal variation in the incidence of infection In an analysis of our cases, we found no statistically valid difference in incidence in any of the four seasons Simons[8] was unable to show any climatic influence in an extensive study on the incidence of infection in Europe and the tropics

Sex—Some studies have suggested that the infection is slightly more common in males than in females, but this series shows no significant difference in incidence Of the 206 patients, 50 7% were males and 49 3% females as compared with the total population in Philadelphia of 48 3% male and 51 7% female

Age—In all previous studies in which the relation between age and frequency of infection were considered, the incidence of infection fell off markedly after the age of 60 However, when the incidence in various age groups is correlated with the population distribution in those age groups, our study indicates that this apparent decrease with increasing age is actually an increase (fig 1)

Race—Our study would indicate that there is no apparent difference in incidence of the infection in white and nonwhite population One might expect that, since this is a study of clinic patients in Philadelphia, there would be an overly large number of patients in one group, however, correlation of our group with the percentage of population in each group in the city of Philadelphia shows that we had a normal racial distribution among our patients Of 111 patients, 81 8% were white and 18 1% were nonwhite as compared with the total population of Philadelphia of 81 9% white and 18 2% nonwhite

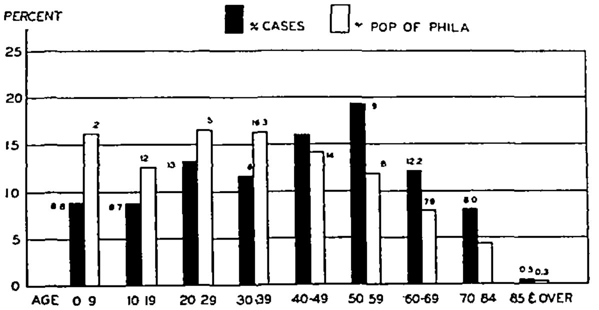

Fig 1—Incidence of herpes zoster by age groups compared with Philadelphia population distribution in each group

Appearance and Distribution of Vesicles

The severity and duration of an infection can be postulated if one observes the number of days over which new vesicles appear Generally, the crusts fall off in from two to three weeks, depending upon the severity of the local destruction In our group of 206 cases, the local reaction was so severe in two cases as to produce a superficial type of gangrene Both of these patients were 60 years old and had no known systemic disease

Of this series of patients, 156 were analyzed as to the number of days over which crops of vesicles appeared In 26 1% of the cases, all of the vesicles appeared within the first 24 hours, in 35 9%, in 48 hours, in 12 9%, in 72 hours and in 12 9%, in 96 hours, in the remainder they continued to appear up to as long as seven days There was good correlation with the duration of the lesions in that (1) if all of the vesicles appeared in the first 24 hours, the eruption cleared in 10 to 13 days, (2) if they all appeared in the first 48 hours, the eruption cleared in 14 to 16 days, and (3) if the vesicles continued to appear for seven days, the eruption continued up to five weeks (fig 2)

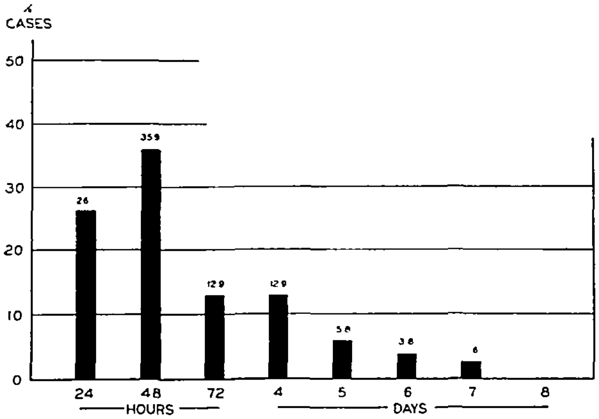

Fig 2—Periods of time and percentage of cases (156) in each period within which all vesicles appeared

In 183 cases, the relation of age to the severity of the cutaneous reaction was studied to determine whether they were significantly related and whether age influenced duration. There were 32 patients in the infant-to-19 year age group Of these, the lesions of 30, or 94%, cleared in 7 to 14 days There were 70 patients in the 40-to-59-year age group Of these, the lesions of 34, or 49%, cleared in 7 to 14 days, 9, or 13%, in 15 to 20 days, 15, or 21%, in 21 to 28 days, and 8, or 11%, in 29 to 55 days, the lesions of the remaining 4, or 6%, lasted longer than 55 days (fig 3) From these figures, it can be seen that the severity of the infection is greater in the older age groups and that, therefore, the duration is longer

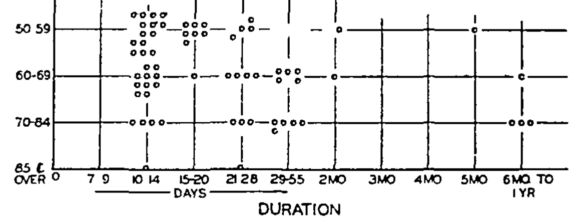

Fig 3—Duration in days and months from onset to clearing of all symptoms of herpes zoster in 183 patients in various age groups

Duration and Distribution

The duration of the infection was determined in 183 cases wherein the duration of the infection was considered to be the period from onset to clearing of all symptoms In this group, 163 patients, or 89.1%, were clear of all skin lesions within five weeks Of these 163, the condition in 2.7% cleared in 7 to 9 days, in 54.6%, in 10 to 14 days, in 9.7%, in 15 to 20 days, in 15.3%, in 21 to 28 days, and in 6%, in 28 to 35 days (fig 4) The remaining 20 patients, or 12%, had pain that persisted after the crusts had fallen off

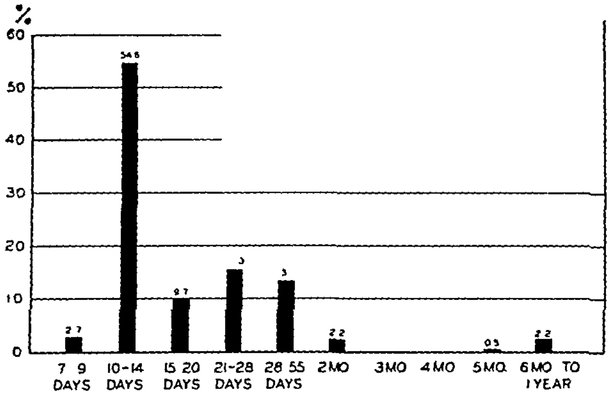

Fig 4—Duration in days and months from onset to clearing of all symptoms of herpes zoster and percentage (of 183 cases) in each duration period

A number of reports have indicated the approximate frequency of the sites involved by herpes zoster Although they all agree as to the frequency of distribution, none has related the frequency of the site of involvement to the age groups We analyzed 204 cases for frequency of distribution and correlated the distribution with age

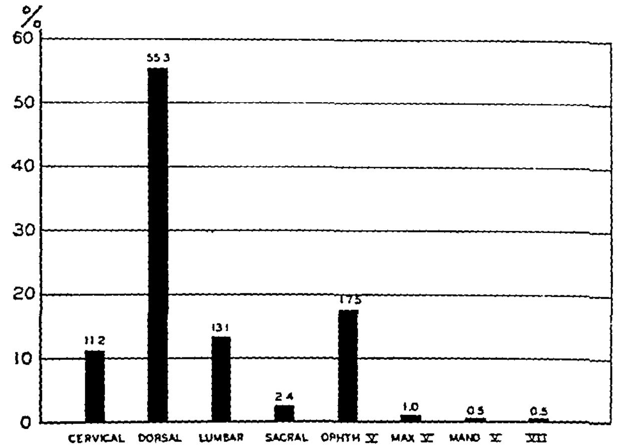

Fig 5—Data from 206 cases on distribution of herpes zoster in regard to involvement of nervous system

The data on distribution in regard to involvement of the nervous system were essentially in agreement with data in previous studies cervical, 11.2%, thoracic, 55.3%, lumbar, 13.1%, sacral, 2.4%, ophthalmic, maxillary, and mandibular divisions of the fifth cranial (trigeminal) nerve, 17.5%, 1.0%, and 0.5% respectively, and the seventh cranial (facial) nerve, 0.5% (fig 5) The high incidence of ophthalmic involvement is at variance with other studies but can be accounted for by the inclusion of the cases from the eye clinic In this analysis, cervicothoracic and lumbosacral were recorded under each distribution There were four patients with cervicothoracic, one with lumbosacral, and none with thoracolumbar involvement

Since age appeared to play a part in the site of involvement, the distributions in the age groups between infancy and 19 years and between 40 and 59 years were analyzed In the 37 patients under 20 years of age, the nerve involvement was either lumbar or thoracic in 89%, cervical in 3%, and maxillary in 1% (fig 6) In the 75 patients in the 40-to-59-year age group the involvement was either lumbar or thoracic in 65.4%, cervical in 10.7%, sacral in 1.3%, ophthalmic in 20%, maxillary in 1.3%, and mandibular in 1.3% There did not appear to be any relation between distribution of nerve involvement and the development of postherpetic neuralgia

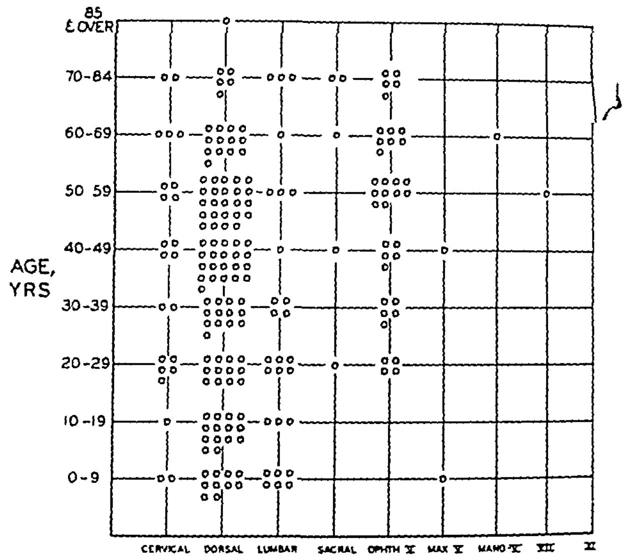

Fig 6—Distribution of nerve involvement among various age groups

Complications

Untoward reactions associated with herpes zoster infections are relatively uncommon, there were 35 cases (16.9%) in this series A number of complications have been reported accompanying this infection They are as follows a superficial type of gangrene, postherpetic neuralgia, endocarditis, meningoencephalitis, paralysis of motor nerves, corneal ulcers, keratitis, and iritis

In our study, postherpetic neuralgia was the most common complication, occurring in 20 cases (9.7%) This is a rare problem in the patient under 40 years of age It occurred in only one patient in the 20 to 29 year age group and lasted only six weeks The distribution of the remaining 19 cases of postherpetic neuralgia and the duration of the disorder were as follows (1) 40-to-49-year age group, one (5%), lasting two months, (2) 50-to-59-year age group, four (20%), lasting two, three, four, and six months respectively,

(3) 60 to 69-year age group, seven (35%), with one lasting one month, two, two months, three, three months, and one, six months, (4) 70-to-85-year age group, six (30%), with one lasting one month, two, two months, and three, six months or longer, and (5) over 85, one (5%), lasting six months (fig 7) Thus the incidence of this complication increases with increasing age, particularly when the population distribution is taken into account

The ophthalmic division of the fifth cranial nerve was *involved in 36 (17 5%) of the 206 patients in this* study Complications such as iritis, conjunctivitis, keratitis, and extraocular muscle paralysis occurred in 12 patients (5 8%) It can be seen that complications associated with this particular segmental distribution were more common than complications arising from any other one group—33 3% in a total of 36 cases The most common ocular manifestation was conjunctivitis, occurring in 7 (19 4%) out of 12 of the 36 patients with ophthalmic herpes zoster Keratitis with or without ulcer occurred in an additional three patients (8 4%), while iritis and extraocular muscular paralysis occurred in one patient each (2 8%) The paralysis in the 48-year-old patient with extraocular muscular paralysis cleared within four months Neuralgia occurred in three of these patients, aged 65, 72, and 78 Ocular complications did not appear to be related to the aging process There was 1 (8 3%) of the 12 patients with such complications *in the 20-to-29-year age group and* there were 2 (16 6%) in the 30 to 39-year age group, 4 (33 3%) in the 40-to-49-year age group, 3 (25 0%) in the 50-to-59-year age group, and 2 (16 6%) in the over-60 year age group

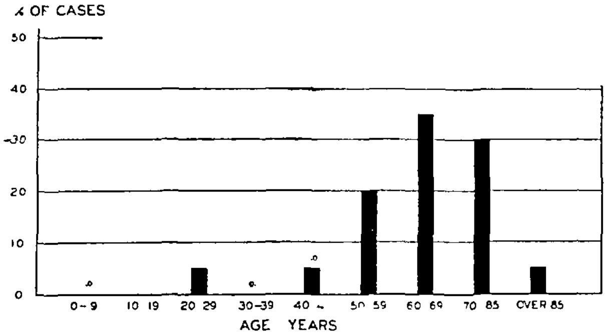

Fig 7—Distribution percentagewise, in various age groups of 20 cases of postherpetic neuralgia

A superficial type of gangrene occurred in two patients, aged 60, or 1% of the total 206 patients studied There was one case of meningoencephalitis in a 3½-year-old child, whose cerebrospinal fluid showed 376 white blood cells, with 40% polymorphonuclear cells and 60% lymphocytes, and normal chloride, protein, and sugar values Electron microscopy of the spinal fluid did not disclose any elementary bodies Another patient, aged 52, with geniculate ganglion involvement had a normal cerebrospinal fluid examination *Three patients had corneal ulcers*

Summary

In order to determine the natural history of herpes zoster infection, 206 unselected cases of the disease were analyzed From the analysis of these cases, we conclude that the following facts are significant Age is an important factor, influencing the frequency of the infection, distribution of lesions, severity of cutaneous reaction, and incidence of postherpetic neuralgia Ocular complications do not appear to be related to the aging process Sex, race and season do not influence the incidence of infection A review of the present knowledge of morphology, immunology, and the clinical picture suggests a similarity of the viruses of herpes zoster and chickenpox

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Laryngeal Tuberculosis—The occurrence of laryngeal tuberculosis had been of grave prognostic significance prior to the days of antibiotic therapy Now, due to the excellent response to antibiotics, laryngeal tuberculosis is merely a complication although it usually indicates a more severe variety of pulmonary tuberculosis, with breakdown of host resistance The treatment of laryngeal tuberculosis is essentially that of the parent condition, namely, pulmonary tuberculosis Tuberculosis of the larynx responds very well to antibiotic therapy, using a combination of the known effective antituberculosis drugs Healing is brought about in a great majority of cases in about four months but treatment is continued for at least one year and is stopped only if the pulmonary status is satisfactory Effective drugs presently used are streptomycin, dihydro-streptomycin, isoniazid and PAS Apart from voice rest, local therapy is now rarely used—L M Arnold, M D , Management of Tuberculosis of the Larynx, *Journal of the Mount Sinai Hospital,* July-August, 1956

CORTICAL EFFECT OF ALPHAPRODINE AND OF CHLORPROMAZINE DURING THIOPENTAL NARCOSIS

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• *Although the exact mechanism is unknown, the administration of alphaprodine and possibly chlor promazine can produce more satisfactory operating conditions when the patient is under light narcosis with thiopental When the alphaprodine was admin istered, previously restless patients became quiet and stimulation of the skin and venipuncture no longer caused motion or withdrawal, at the same time, a decreased amount of thiopental was needed to pro duce the desired clinical response*

A vast number of surgical procedures have been conducted with the patient under narcosis with thiopental sodium The use of this thiobarbiturate has many clinical advantages, but the drug does lack a true analgesic quality, and the amount of this agent required to provide adequate operating conditions varies widely from patient to patient Prolonged somnolence is an occasional undesirable result

These disadvantages may be somewhat overcome when thiopental is used in conjunction with an analgesic such as alphaprodine (Nisentil) hydrochloride or a thalamic blocking agent such as chlorpromazine, with the result that a form of balanced anesthesia is obtained[1] Laborit and co-workers,[2] Forster and co-workers,[3] Wallis,[4] and Kiersey and co-workers,[5] have stated that the addition of these drugs or similar agents can reduce the thiopental requirement by as much as one-third

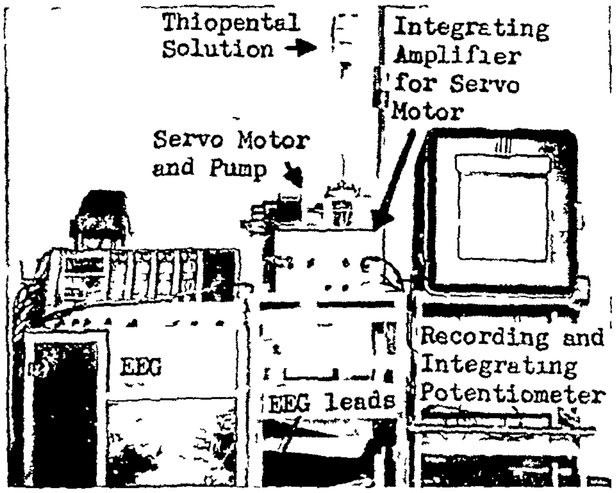
Thiopental Solution
Integrating Amplifier for Servo Motor
Servo Motor and Pump
EEG
EEG leads
Recording and Integrating Potentiometer

Fig 1 —Apparatus used for study Frontocentral needle leads connect to terminal board which is connected to electroencephalograph Amplified electrical impulses pass to integrating amplifier, which filters and integrates activity of 24 cps driving the servomotor and pump assembly Thiopental solution from reservoir is delivered at rate appropriate to maintain level of anesthesia in accordance with reference level previously selected on amplifier Thiopental solution is thus delivered according to patient s needs, as determined by cortical electroencephalogram A recording and integrating potentiometer measures the instantaneous flow and amount per time unit of thiopental administered

The purpose of this study is to determine the effect of alphaprodine, levallorphan, and chlorpromazine on the electroencephalographic pattern and on the rat of thiopental administration during thiopental na cosis regulated by a servomotor

Method of Study

Seven patients were included in the study Physic examination revealed no significant central nervou system, cardiovascular, or respiratory disease Surgic procedures were limited to those on the lower e tremities or on the lower part of the abdomen (tabl 1) Four patients received adequate subarachnoi block of the surgical field, adjusted to last at lea throughout the duration of the procedure, with tetr caine hydrochloride–dextrose–epinephrine Ephedrin was included in the procaine solution used for th skin wheal Subarachnoid block was done in order t prevent sensory stimuli from interfering with the e perimental method In three patients, observatio were made prior to surgery and no subarachnoi block was done

Since the servomechanism was not capable of rapi ly inducing anesthesia with a dilute solution of thi pental but could easily maintain any desired level anesthesia, a priming dose of a 2 5% solution of thi pental was given by the anesthesiologist in order t place the patient at the desired level of narcosis shown on the electroencephalogram Frontocentr electroencephalographic needle leads were then i serted, and recordings were made on a Grass electr encephalograph, model III-D An integrating amplifi filtered for activity of 24 cps received the amplifie electrical impulses from the electroencephalograp and activated a servomotor, which in turn drove modified American Optical blood pump This ap paratus delivered a 1 or 2% solution of thiopental a rate to maintain a constant electroencephalograph reading of level 2 narcosis[5] A recording and integra ing potentiometer was included in the circuit to i dicate the instantaneous rate and minute-by-minut volume of thiopental administered

This servomechanism used for the automatic a ministration of an anesthetic agent (fig 1) is simila to the one used for administration of cyclopropan previously described by one of us and co-workers

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Read before the Section on Anesthesiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956

The mechanism has been modified for the administration of thiopental by the substitution of a pump activated by the servomotor for the valve control for cyclopropane and by the substitution of a circuit sensitive to the rate of administration of a solution rather than to the position of a flowmeter valve Ventilation was adequately assisted by the administration of 100% oxygen by a face mask, with closed-circuit carbon dioxide absorption to prevent the development of hypoxia and hypercapnia A stabilization period ranging from 15 minutes to one hour was then permitted until the electroencephalographic pattern and the rate of administration of thiopental became constant

The drugs under investigation were then given Sixty milligrams of alphaprodine was administered intravenously Fifteen minutes later, 1 mg of levallorphan, a narcotic antagonist, was administered intravenously Fifteen minutes later, an intravenous dose of 4 or 5 mg of chlorpromazine was given After 15 minutes of observation, an additional dose of thiopental was given rapidly into a vein other than the one used by the servomechanism and the effect was noted

Results of Study

After a priming dose of thiopental ranging from 250 to 875 mg, a 1 or 2% solution of thiopental was administered by the servomotor to maintain an electroencephalographic reading of level 2 narcosis The administration of an average of 21 3 mg of thiopental per minute was required, with a range of 10 3 to 50 4 mg per minute The general condition of the patients at this time was as follows There was spontaneous respiration, noxious stimulation or venipuncture caused withdrawal flexion reflex, and occasionally there was spontaneous motion Blood pressure and pulse were stable at the levels normal for each patient The results are summarized in tables 1 and 2 Also see figures 2 and 3

Alphaprodine—Alphaprodine, 60 mg given intramuscularly at a rate of 30 mg per second, had no effect on the electroencephalographic pattern or on the rate of thiopental administration However, there were marked clinical changes Previously restless patients became quiet Stimulation of the skin and venipuncture no longer caused motion or withdrawal In three of the patients, apnea resulted and in one, a decrease in respiratory depth

Levallorphan—Levallorphan, 1 mg given intravenously at a rate of 0 5 mg per second had no effect on the electroencephalographic pattern or on the rate of thiopental administration in five patients After receiving levallorphan, two patients who had had apnea resumed spontaneous respiration and one patient with decreased depth of respiration resumed full activity Two doses of 1 mg each failed to restore spontaneous respiration in one patient No other effects of the administration of levallorphan were noted

Chlorpromazine—Chlorpromazine, 4 or 5 mg given intravenously at a rate of 2 to 2 5 mg per second, had no effect on the electroencephalographic pattern or

Table 1—*Thiopental Requirements in Seven Patients Under Level 2 Narcosis Regulated by Servomotor*

Case No	Sex	Age Yr	Type of Procedure	Duration of Procedure Hr Min	Premedication Mg	Spinal Anesthetic	Thiopental Priming Dose Mg	Servomotor Stabilization Period Min	Total Time on Servomotor Hr Min	Thiopental Mg /Min	Total Dose of Thiopental Gm
1	F	61	Phlebectomy	1 45	Phenobarbital sodium 90 Atropine 0 3	Yes	300	15	1 7	22 4	1 5
2	F	43	Repair of vesico vaginal fistula	7 30	None	Yes	250	20	2 50	10 3	1 65
3	F	34	Cystopexy	2 0	None	Yes	500	15	2 6	10 3	1 3
4	F	37	Presurgery		Phenobarbital sodium 130 Atropine 0 4	No	500	15	2 30	16 7	2 5
5	F	43	Presurgery study		None	No	875	30	0 43		
6	F	46	Presurgery study		None	No	400	25	1 40	17 5	1 75
7	M	17	Phlebectomy	2 0	None	Yes	450	75	2 0	50 4	6 05

Table 2—*Effects of Intravenous Administration of Alphaprodine, Levallorphan, and Chlorpromazine in Seven Patients Under Level 2 Narcosis with Thiopental*

Case No	Other Effects of Alphaprodine*	Levallorphan Mg †	Other Effects of Levallorphan	Chlorpromazine Mg ‡	Other Effects of Chlorpromazine	Time Required to Recover Consciousness
1	Decrease in depth of respiration	1	Return of depth of respiration	4	Fall in blood pressure tachycardia	4 hr
2	None	1	None	4	Fall in blood pressure tachycardia	35 min
3	Apnea	1	Spontaneous respiration	5	Rise in blood pressure tachycardia	1 hr
4	None	1	None	None		Preoperative study
5	None			None		Preoperative study
6	Apnea no response to venipuncture	2 in 2 doses	Spontaneous respiration	5	None	Preoperative study
7	Apnea	1	None	5	Fall in blood pressure tachycardia	2 days in spite of light narcosis shown by EEG

* 60 mg of alphaprodine was administered to each patient with no effect on the thiopental requirement

† Administration of levallorphan had no effect on thiopental requirements

‡ Administration of chlorpromazine had no effect on thiopental requirements

on the rate of thiopental administration in five patients In four of the five patients tachycardia averaging 34% was noted, and in three of the five patients there was an average fall in blood pressure of 48 mm Hg systolic and 23 mm Hg diastolic After the effect of chlorpromazine was observed for 15 minutes, a dose of thiopental ranging from 100 to 250 mg was administered rapidly through a vein other than the one used by the servomechanism This produced an electroencephalographic pattern characteristic of a deeper level of narcosis and a decrease in the administration of thiopental by the servomotor

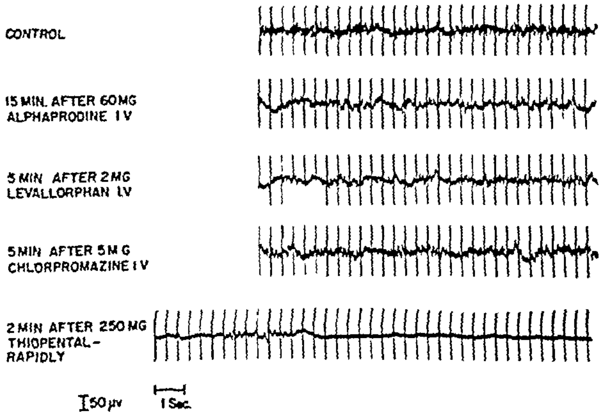

Fig 2 —Effect of alphaprodine levallorphan, chlorpromazine and additional thiopental on electroencephalographic pattern during light anesthesia with thiopental Cortical electroencephalogram is unchanged by administration of first three drugs despite change in clinical condition (see text) Administration of additional thiopental however, causes deeper level of anesthesia as seen on electroencephalogram

Comment

The administration of alphaprodine, levallorphan, and chlorpromazine does not alter the cortical electroencephalographic pattern when the patient is under light narcosis with thiopental, nor does it modify the amount of thiopental required for the servomechanism to maintain an electroencephalographic reading characteristic of light narcosis The administration of alphaprodine and possibly chlorpromazine can produce more satisfactory operating conditions when the patient is under light narcosis with thiopental, but these drugs do not accomplish this goal by the potentiation of the cortical-depressant action of thiopental Rather, these drugs act at sites as yet unknown

The validity of the servomechanism should be discussed at this point That the servomechanism is valid for administering thiopental has been shown by the fact that the manual administration of an extra dose of thiopental produces a deeper level of narcosis, with a corresponding change in electroencephalographic pattern and a lessening of the amount of thiopental administered However, if a drug is given that produces apparently deeper narcosis without affecting the cortical electroencephalogram, the servomechanism will not be sensitive to this change and will continue to administer thiopental in terms of the requirements established by the findings on cortical electroencephalogram In view of the work of Magoun[7] and others on the importance of the ascending reticular system in anesthesia, the need for electroencephalographic recording from areas other than the cortex is submitted for consideration

The servomechanism is a feedback loop that attempts to reach equilibrium by meeting those changes in the patient's condition that it is able to detect Systems have been constructed to measure and record all of the modalities observed by the anesthesiologist Given a sufficiently complex computer that is able to interpret the meaning of these findings, the maintenance of an adequate level of clinical anesthesia by a multichannel servomechanism is not impossible However, the number and type of observations and interpretations that such a machine can make will be limited by its construction In a situation that calls for new powers of observation or interpretation, the servomechanism would be inadequate It is this last limitation that probably explains the apparent discrepancy in our finding of altered operating conditions without a change being apparent in the cortical electroencephalogram

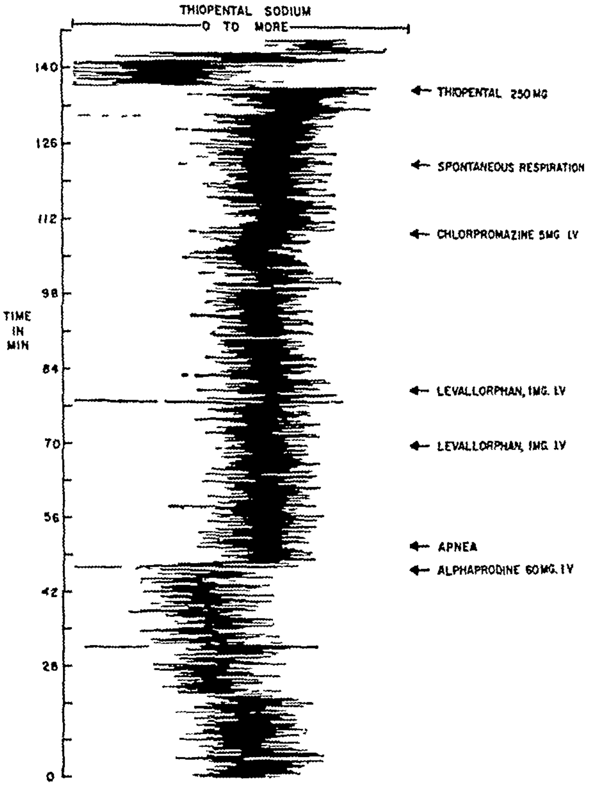

Fig 3 —Effect of alphaprodine, levallorphan, chlorpromazine, and additional thiopental on rate of administration of thiopental regulated by servomotor First three drugs do not alter rate of administration of thiopental, despite changes in clinical condition of patient Administration of additional thiopental, however depresses cortical electroencephalogram and, thereby, decreases amount of thiopental given by servomechanism

That the requirement for thiopental during surgery can be reduced by the additional administration of alphaprodine is clear, for, in the series of Foldes and associates[8] of 852 patients, satisfactory operating conditions were obtained in 92 patients with the administration of alphaprodine and levallorphan alone, without thiopental

Conclusions

The administration of alphaprodine, levallorphan, and chlorpromazine does not alter the electroencephalographic response during light thiopental narcosis, nor does it decrease the dosage of thiopental required to maintain a constant electroencephalographic pattern showing light narcosis The administration of alphaprodine and possibly chlorpromazine does produce clinical changes that result in more satisfactory operating conditions and, thereby, decreases the thiopental requirement by mechanisms that are not yet elucidated

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HOSPITAL HOUSE STAFFS, 1950-1955

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- *More than three fifths of the physicians who complete internships today continue specialty training without interruption The number of internships and residencies offered in approved programs is nearly three times what it was before World War II For 1955 1956, 8,780 interns and 21,213 residents were reported in training in the hospitals studied Of the 8,780 interns, 2,300 were aliens Analysis of the figures showed that the number of native interns had increased during the period studied but that the number of alien interns had increased much faster Even so, 17% of the internships as well as 19% of the residencies were unfilled The increase in the number of physicians taking specialty training since 1952 has been accounted for entirely by aliens There has been a decrease in the number of residents specializing in tuberculosis and a striking increase in the number specializing in anesthesiology The facts obtained by the Health Resources Advisory Committee afford a basis for consideration of many problems of the staffing of hospitals and the mobilization of medical resources*

One of the significant developments in the training of physicians has been the expansion of hospital residency programs Today, more than three-fifths of the physicians who complete internships continue specialty training without interruption Others, upon discharge from military service, return to hospitals to begin or complete residencies

Through these programs for graduate medical education, physicians have an opportunity to acquire and develop specialized knowledge and skills in diagnosis and treatment before entering medical practice Incidental to this training, such physicians provide hospitals with needed staff and make significant contributions to the provision of medical care

In recent years the demand for hospital services has increased tremendously Between 1950 and 1955 hospital admissions rose from about 18 million to 21 million and the average daily hospital census increased from 1,250,000 to almost 1,400,000 Increase of population (due primarily to increases in both birth rates and longevity), a rising economic level, development of prepayment plans, and increasing awareness of health needs and medical advances have all contributed to the increased demand

In 1955-1956, more than 38,000 internships and residencies were offered in approved programs at 1,400 hospitals This compares to 30,000 positions offered by

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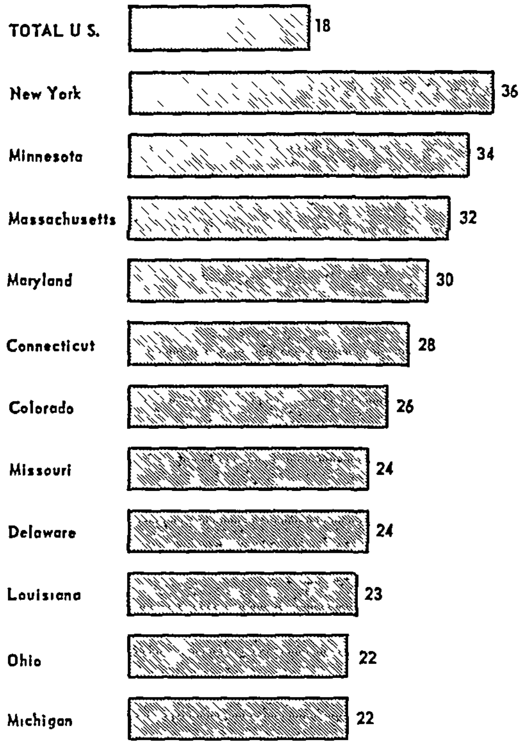
Member, Health Resources Advisory Committee, and Dean of Medical Sciences, University of Minnesota (Dr Diehl), Member, Health Resources Advisory Committee, and Executive Director, American Hospital Association (Dr Crosby), and Member, Health Resources Advisory Committee Staff, Office of Defense Mobilization (Mr Kaetzel)

1 100 hospitals in 1950 and only 13,000 prior to World War II As shown in table 1, a considerable number of these positions have not been filled, although the percentage unfilled has been decreasing over the past three years In 1950, 32% of the internships and 25% of the residencies were unfilled The comparable figures for 1955 were 17 and 19% respectively

The Korean war created an immediate and urgent need for additional medical and dental officers for the armed forces In order to provide them, Congress passed Public Law 779, the "doctor-draft' act Among other provisions, this law specified the order of call, by designating four different priority groups Priorities 1 and 2 consisted of physicians and dentists who were permitted to continue their education during World War II, priority 3 included those who had neither deferment nor military service, and priority 4 consisted of veterans



States with highest ratios of hospital house staffs per 100,000 civilian population, 1955

Since 1950, when the doctor-draft law become effective, the Health Resources Advisory Committee of the Office of Defense Mobilization has conducted yearly surveys of interns and residents in approved programs at hospitals (The Health Resources Advisory Committee also serves as the National Advisory Committee to the Selective Service System) Hospitals operated by the Department of Defense and the Public Health Service were excluded from these surveys The purpose of these surveys has been to show (1) normal or existing staffing levels which could be used as bench marks in mobilization planning and (2) the extent of losses due to military withdrawals under the "doctor-draft' law Participation by hospitals having approved training programs was 97% or higher in each of the six survey years

Table 1 —*Total Number of U S Hospitals with A M A Approvals for Internship and Residency Programs Number of Available Positions and Percentage Unfilled Each Year, 1950-1955**

	Internships			Residencies		
Year	No Hospitals	No Positions	% Unfilled	No Hospitals	No Positions	% Unfilled
1950-1951	828	10 044	32	1 120	19 364	25
1951 1952	865	11 467	28	1 123	20 645	23
1952 1953	853	11 006	28	1 131	22 292	24
1953 1954	844	10 624	22	1 154	23 628	21
1954 1955	850	11 048	18	1 181	25 486	20
1955-1956	867	11 616	17	1 202	26 516	19

* Data from Annual Report on Internships and Residencies J A M A Sept 29 1951 Sept 27 1952 Sept 26 1953 Sept 25 1954 Sept 24 1955 and Sept 22 1956

House Staffs, 1955-1956

For 1955-1956, 8,780 interns and 21,213 residents were reported in training at hospitals in 45 states, the District of Columbia, the Canal Zone, Hawaii, and Puerto Rico (Here and elsewhere in this report, the term 'residents" includes second-year and third-year interns, residents, and fellows The term "interns' includes only first-year interns) Over one-half of these interns and residents were in six states—New York, Pennsylvania, California, Ohio, Illinois, and Massachusetts New York and Massachusetts ranked first and third, respectively, in number of house staff per 100,000 civilian population (see figure)

Table 2 —*Percentage of Change, Since 1950, in Number of Interns and Residents in Approved Programs at Hospitals**

	Total House Staff		Intern House Staff		Resident House Staff	
Training Year	No	% Change from 1950 1951	No	% Change from 1950 1951	No	% Change from 1950-1951
1950-1951	24 442		6 237		18 205	
1951 1952	22 918	— 6 2	6 783	+ 8 8	16 135	—11 4
1952 1953	23 221	— 5 0	6 990	+12 1	16 231	—10 8
1953 1954	25 896	+ 5 9	7 705	+23 5	18 191	— 0 1
1954 1955	28 146	+15 2	8 178	+31 1	19 968	+ 9 7
1955-1956	29 993	+22 7	8 780	+40 8	21 213	+16 5

* Excluding Department of Defense and Public Health Service Hospital

Table 3 —*Percentage of Change Since 1950, in Number of Citizen and Alien Interns and Residents in Approved Programs at Hospitals**

	Total House Staff		Intern House Staff				Resident House Staff			
Training Year	No	% Change from 1950-1951	Citizens	% Change from 1950-1951	Aliens	% Change from 1950 1951	Citizens	% Change from 1950 1951	Aliens	% Change from 1950-1951
1950-1951	24 442		5 515		722		16 855		1,350	
1951 1952	22 918	— 6 2	5 667	+ 2 8	1 116	+ 54 6	13 902	—17 5	2 233	+ 65 4
1952 1953	23 221	— 5 0	5 637	+ 2 2	1 353	+ 87 4	13 196	—21 7	3 035	+124 8
1953 1954	25 896	+ 5 9	5 918	+ 7 3	1 787	+147 5	14 389	—14 6	3 802	+181 6
1954 1955	28 146	+15 2	6 187	+12 2	1 991	+175 8	15 264	— 9 4	4 701	+248 4
1955-1956	*29 993*	*+22 7*	*6 487*	*+17 6*	*2 293*	*+217 6*	*15 633*	*— 7 3*	*5 580*	*+313 3*

* Excluding Department of Defense and Public Health Service hospitals

Of physicians in training, 45% were in the 140 general hospitals with medical school teaching affiliations, 45% were in 1,100 other general hospitals, and 10% were in mental, tuberculosis, and other special hospitals

TABLE 4 —*Alien Physicians Training in A M A -Approved Programs in Hospitals in U S and Territories, as Percentage of Total House Staffs, 1955-1956 Training Year**

	Total House Staff			Intern House Staff			Resident House Staff		
State and Territory	Total Staff	Alien Staff	%	Total Staff	Alien Staff	%	Total Staff	Alien Staff	%
Total	29 993	7 873	26 2	8 780	2 293	26 1	21 213	5 580	26 3
New England	2 529	731	28 9	594	169	28 5	1 935	562	29 0
Connecticut	631	202	32 0	179	55	30 7	452	147	32 5
Maine	44	8	18 2	22	5	22 7	22	3	13 6
Massachusetts	1 624	460	28 3	336	102	30 4	1 288	358	27 8
New Hampshire	37	3	8 1	12			25	3	12 0
Rhode Island	126	44	34 9	34	7	20 6	92	37	40 2
Vermont	67	14	20 9	11			56	14	25 0
Central Atlantic	10 203	3 495	34 3	2 877	9 0	33 7	7 326	2 525	34 5
Delaware	93	24	25 8	25	2	8 0	68	22	32 4
District of Columbia	541	170	31 4	142	42	29 6	399	128	32 1
Maryland	809	293	36 2	216	65	30 1	593	228	38 4
New Jersey	769	523	68 0	373	283	75 9	396	240	60 6
New York	5 770	2 005	34 7	1 460	526	36 0	4 310	1 479	34 3
Pennsylvania	2 097	405	19 3	608	18	3 0	1 489	387	26 0
West Virginia	124	75	60 5	53	34	64 2	71	41	57 7
South East	3 528	490	13 9	1 105	162	14 7	2 423	328	13 5
Alabama	224	14	6 3	75	5	6 7	149	9	6 0
Arkansas	108	9	8 3	38	2	5 3	70	7	10 0
Florida	314	76	24 2	116	31	26 7	198	45	22 7
Georgia	408	52	12 7	115	16	13 9	293	36	12 3
Kentucky	256	76	29 7	73	32	43 8	183	44	24 0
Louisiana	680	27	4 0	218	20	9 2	462	7	1 5
Mississippi	10	1	10 0	3			7	1	14 3
North Carolina	403	44	10 9	105	4	3 8	298	40	13 4
South Carolina	135	8	5 9	68	1	1 5	67	7	10 4
Tennessee	537	93	17 3	156	27	17 3	381	66	17 3
Virginia	453	90	19 9	138	24	17 4	315	66	21 0
South West	1 184	251	21 2	387	61	15 8	797	190	23 8
Arizona	89	44	49 4	53	24	45 3	36	20	55 6
New Mexico	18						18		
Oklahoma	188	19	10 1	68	7	10 3	120	12	10 0
Texas	889	188	21 1	266	30	11 3	623	158	25 4
East North Central	6 200	1 771	28 6	1 986	572	28 8	4 214	1 199	28 5
Illinois	1 915	710	37 1	678	282	41 6	1 237	428	34 6
Indiana	316	14	4 4	93	1	1 1	223	13	5 8
Michigan	1 557	293	18 8	432	53	12 3	1 125	240	21 3
Ohio	1 957	682	34 8	630	197	31 3	1 327	485	36 5
Wisconsin	455	72	15 8	153	39	25 5	302	33	10 9
West North Central	2 812	672	23 9	672	184	27 4	2 140	488	22 8
Iowa	277	54	19 5	63	14	22 2	214	40	18 7
Kansas	304	59	19 4	66	10	15 2	238	49	20 6
Minnesota	1 079	215	19 9	183	36	19 7	896	179	20 0
Missouri	1 004	315	31 4	298	102	34 2	706	213	30 2
Nebraska	110	7	6 4	32	2	6 3	78	5	6 4
North Dakota	19	9	47 4	15	7	46 7	4	2	50 0
South Dakota	19	13	68 4	15	13	86 7	4		
Rocky Mountain	557	104	18 7	161	30	18 6	396	74	18 7
Colorado	395	72	18 2	108	16	14 8	287	56	19 5
Montana	9	9	100 0	4	4	100 0	5	5	100 0
Utah	153	23	15 0	49	10	20 4	104	13	12 5
Far West	2 748	305	11 1	883	127	14 4	1 865	178	9 5
California	2 265	233	10 3	699	98	14 0	1 566	135	8 6
Oregon	213	26	12 2	64	11	17 2	149	15	10 1
Washington	270	46	17 0	120	18	15 0	150	28	18 7
Territories	232	54	23 3	115	18	15 7	117	36	30 8
Canal Zone	35	6	17 1	18	1	5 6	17	5	29 4
Hawaii	73	42	57 5	28	16	57 1	45	26	57 8
Puerto Rico	124	6	4 8	69	1	1 4	55	5	9 1

* Excluding Department of Defense and Public Health Service hospitals

Five Year Trends

Total Number of Interns and Residents —In 1950, before the mobilization of physicians got under way, hospitals had staffs of more than 24,000 interns and residents In 1951 and in 1952, in spite of extensive withdrawals under the "doctor-draft" law, hospital house staffs numbered about 23,000, a level only 5% below the 1950 total In each of the three subsequent years (1953-1955), hospital house-staff totals showed an increase over the 1950 level—6% in 1953, 15% in 1954, and 23% in 1955 (table 2)

Over the five-year period, there was an annual increase in the number of interns, with the 1955 total 40% above the 1950 figure On the other hand, the number of residents in 1951 and 1952 was about 2,000 less than in 1950 In 1953, the number of residents approximated the 1950 total, in 1954, there were 10% more, and in 1955, 17% more than in 1950

These increases are reflections of increases both in numbers of medical school graduates and in numbers of alien physicians taking training in this country In addition, for the past several years, the armed forces have been returning physicians to civilian life at about the same rate as they have been withdrawing from it

Citizenship Status—As pointed out earlier, comparison of 1955-1956 data with those of 1950-1951 shows an over-all increase of 23% in house-staff members When the data for citizens and aliens are viewed separately, a somewhat different picture appears (table 3) Over the five-year period the citizen group showed a slight (1%) decrease—22,120 as compared to 22,370—while the alien group increased 280%, from 2,072 to 7,873

Over this five-year period the total number of interns increased from 6,237 to 8,780, or 40% The citizen portion of the increase, however, was only about 1,000, or 18%, while the alien portion increased from 700 to 2,300, or 218% The total number of residents increased from 18,205 to 21,213, or 16% since 1950, with all of the increase accounted for by the alien group, which increased more than 300% In fact, between 1950 and 1952, the number of citizens taking residencies dropped from 16,855 to 13,196—a 22% decrease This was due to military withdrawals from the age group which normally fills residencies In 1953, numbers of citizen residents in training began to increase, and, by 1955, although the number was 7% below the 1950 level, it was 18% above the five-year low in 1952

TABLE 5—*Percentage of Change, Since 1950, in Number of Residents in Approved Positions at Hospitals, by Specialty**

Specialty	No of Physicians 1950-1951	No of Physicians 1955-1956	% Change from 1950 1951
Total	18 205	21 213	+16 5
General practice	416	531	+27 6
Eye ear nose and throat	790	784	− 0 8
Internal medicine	4 268	4 436	+ 3 9
Obstetrics and gynecology	1 641	1 934	+17 9
Pathology	794	1 077	+35 6
Pediatrics	1 105	1 290	+16 7
Neurology and/or psychiatry	1 740	2 332	+34 0
Radiology	870	1 108	+27 4
Tuberculosis	298	225	−24 5
General surgery	4 406	4 955	+12 5
Anesthesiology	509	845	+66 0
Orthopedic surgery	633	719	+13 6
Urology	352	423	+20 2
Other	383	554	+44 6

* Excluding Department of Defense and Public Health Service Hospitals

By 1955, more than 900 of the 1,400 hospitals with approved graduate medical education programs had one or more aliens in training, with about one-half of the aliens concentrated in four states—New York, Illinois, Ohio, and New Jersey States which reported high proportions of alien house staffs were New Jersey, 68 0%, West Virginia, 60 5%, Arizona, 49 4%, Illinois, 37 1%, Maryland, 36 2%, Rhode Island, 34 9%, Ohio 34 8%, and New York, 34 7% (table 4)

Priority Distribution—The doctor-draft law specified the order of call to military service of medical and dental personnel by designating four priority groups The proportion of house-staff members reported in priorities 1 and 2 decreased from 24% in 1950 to an almost negligible number in 1955

The number of priority 3 physicians in training increased from about 3,000 in 1950 to about 4,200 in 1955 This is a reflection of the rising proportion of nonveteran graduates who have been deferred for the completion of their education and an internship Priority 3 registrants comprised 18% of the interns and 10% of the residents in 1950, as compared to 32% of the interns and 7% of the residents in 1955

House staffs in 1950 through 1953 were made up increasingly of priority 4 physicians These men were veterans of World War II or Korea By 1953, priority 4 physicians accounted for more than one-half of all physicians in training Beginning with 1954, the proportion of house-staff members who were priority 4 dropped, and, by 1955, although there were about 2,000 more in training than in 1950, they comprised about the same proportion of total staff—40%

Hospital Specialty Service—Despite the over-all increase of 16% in the number of residents between 1950 and 1955, there was a decrease of 24% in the number of residents specializing in tuberculosis The number on eye, ear, nose, and throat services showed no change during this five-year period Increases occurred in all of the other specialties, the largest being a 66% increase in anesthesiology Other substantial increases were pathology, 36%, neurology and psychiatry, 34%, general practice, 28%, and radiology, 27% (table 5) Internal medicine, which accounted for 21% of the total residents in 1955, and general surgery, which accounted for 23%, increased 4 and 12%, respectively, between 1950 to 1955

Future Outlook

An increase in the number of citizen interns is anticipated for the years immediately ahead Medical school enrollments are at record levels Since 1951, two new schools have gone into operation and are now graduating students Another school began enrolling students in 1955 and will graduate the first class in 1959 Two other schools, which formerly had two-year programs, are in the process of developing four-year programs and will graduate students by 1957

Since 1952, the increase in the number of physicians taking specialty training has been accounted for entirely by aliens The next few years, however, should bring an increase in the number of citizen residents Even if the proportion of each graduating class that takes residency training remains constant, the increase in the number of medical school graduates will result in an increase in the number of citizens taking residency training

Summary and Conclusions

Hospital house-staff surveys have been conducted annually, since 1950, by the Health Resources Advisory Committee of the Office of Defense Mobilization Some of the important aspects of the analysis of these surveys are as follows 1 Over the five-year period the total number of interns in approved programs in hospitals has increased by 40 8% and the number of residents by 16 5% 2 The number of interns who are United States citizens increased by 1,000, or 18%, and the number who are noncitizens by 1,600, or 218% 3 In 1955, the number of residents who were citizens was 7% below the 1950 level There was a decrease of 22% between 1950 and 1952 as a result of withdrawals to enter military service during the Korean war, but since that time the number has been increasing The number of noncitizen residents increased by 4,200, or more than 300%, during the five-year period 4 About one-half of the noncitizens were concentrated in four states—New York, Illinois, Ohio, and New Jersey 5 The proportion of house-staff members reported in priorities 1 and 2, as designated under the "doctor-draft' act, decreased from 24% in 1950 to an almost negligible number in 1955, priority 3 registrants comprised 18% of the interns and 10% of the residents in 1950, as compared to 32% of the interns and 7% of the residents in 1955, and priority 4 registrants accounted for about the same percentage in 1955 as in 1950—40% 6 During the five-year period there was a decrease of 24% in the number of residents specializing in tuberculosis With the exception of eye, ear, nose, and throat, which showed no change, increases occurred in all of the other specialties, the largest being a 66% increase in anesthesiology

These annual tabulations of hospital house staffs have provided the Health Resources Advisory Committee with data necessary for the successful execution of its responsibilities and provide a potential basis for adjustment of staffing in case of more active mobilization

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CLINICAL NOTES

BEDSIDE DETERMINATION OF UREA NITROGEN LEVEL IN SERUM OR PLASMA

Elma C Lile, A B , Mario F Villamil, M D , Mark C Rhees, M S
and
Belding H Scribner, M D , Seattle

A quick, accurate test for determining the serum urea nitrogen level is needed for night and emergency work and for routine office screening Caraway[1] describes a rapid turbidity method for determination of urea nitrogen level with use of xanthydrol We find his method to be only semiquantitive, it is able to determine whether the urea nitrogen level is normal or above normal but does not measure satisfactorily the degree of elevation Also, the timing is extremely critical The urea nitrogen test described here is performed on a drop of serum or plasma and is accurate enough for routine clinical needs over the range of 4 to 300 mg per 100 cc It uses a minimum of equipment and stable reagents and is a simple, two-minute test

Principle of Method

The method proposed here is a modification of the method of Van Slyke and Cope[2] One drop of glycerin (glycerol) urease extract (Harleco) is added directly to one drop of serum to hydrolyze the urea to ammonia The hydrolysis is complete within one minute at room temperature The mixture is then diluted with isotonic sodium chloride solution and Nessler's reagent is added to produce color The depth of this color, and hence the urea nitrogen concentration, is determined by comparison with color standards made by Nesslerizing solutions of ammonium sulfate A set of permanent color standards can also be used in the 0-30 mg per 100 cc range, and this makes the procedure a little faster when it is used as a screening test It should be noted that the color is developed in the presence of plasma proteins, which eliminates the necessity for preparing a protein-free filtrate

Equipment

The equipment includes (1) two bottles—one 2-oz plastic bottle for Nessler s reagent and one ½-oz bottle for glycerin urease solution, (2) three droppers—one to deliver the sample (select a standard medicine dropper with an average-size tip, if in doubt check delivery, which, when the dropper is held vertically, should be about 0 4 cc per 10 drops), one for the urease bottle, and one for the Nessler s reagent that delivers 0 7 to 1 0 cc per delivery, (3) four test tubes—Pyrex culture tubes 13 by 100 mm (Corning 9820) to be calibrated by scratching a mark at 3 cc , (4) a standard 1-cc tuberculin syringe for measuring the standard ammonium sulfate solution (measurement is facilitated if the barrel of a 20-gauge hypodermic needle is cut away from its hub, filed to reopen the lumen, and cemented into the tip of the syringe), and (5) permanent color standards Permanent color standards are not essential but can be used for determinations under 30 mg per 100 cc and have colors representing urea nitrogen concentration of 10, 20, and 30 mg per 100 cc The following two solutions are required to make up these three color standards an aqueous solution of phenolsulfonphthalein containing 40 mg of the water-soluble sodium salt in 1,000 cc and any buffer solution of pH 5 0 ± 0 2 (Use Coleman blue label certified buffer tablets or make according to instructions in standard textbooks)

The individual color standards are made up by using the proportions of the above reagents given in the table The color standards should be sealed in

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From the Veterans Administration Hospital and the Department of Medicine, University of Washington School of Medicine ampuls made from 13 by 100 mm Pyrex culture tubes If the ampuls are boiled for one-half hour after sealing, the colors will remain stable indefinitely

This equipment can be conveniently combined into a small portable kit or included in a larger kit that contains bedside tests for chloride,[3] bicarbonate,[4] and sodium [5]

Reagents

The four reagents used are as follows

1 Glycerin urease extract This appears to be stable indefinitely at room temperature However, it is recommended that the stock bottle be stored in the refrigerator and the supply in the kit be renewed every four to six months

2 Nessler's reagent [6] For Nessler's reagent add 45 5 Gm of mercuric iodide and 34 9 Gm of potassium iodide to a 1-liter volumetric flask and dissolve in 500 cc of distilled water Add slowly to this mixture 200 cc of 10 *N* potassium hydroxide (or an equivalent amount of another concentration) Dilute to 1 liter Protect this reagent from atmospheric carbon dioxide If the reagent is clear, it can be used immediately If there is any turbidity, this can be reduced by storing the reagent in the dark for about two months A small supply of Nesslers reagent is kept in a plastic bottle in the kit Keep the dropper out of the bottle in the kit or the rubber bulb will react with the reagent

Preparation of Color Standards by Placing Indicated Amount of Phenolsulfonphthalein in 100 Cc Volumetric Flask and Diluting to 100 Cc with Buffer

Standard Mg /100 Cc	Phenolsulfonphthalein Cc	pH 5 0 Buffer Cc
10	7 7	92 3
20	12 5	87 5
30	22 7	77 3

3 Standard ammonium sulfate solution This contains 188 6 mg of ammonium sulfate per liter of approximately 0 1 *N* sulfuric acid

4 Isotonic solution of sodium chloride (9 Gm per liter) This is used to dilute samples of serum or plasma and is conveniently dispensed in a small plastic wash bottle

Procedure

The basic procedure is as follows (test tubes must be rinsed free of Nessler's reagent)

1 Measure 0 04 cc (1 drop) of serum or plasma into one of the 13 by 100 mm Pyrex culture tubes This measurement can be accomplished in one of two ways For most clinical needs measurement with a dropper is sufficiently accurate Deliver one drop from the sample dropper described above, being sure that the drop strikes the bottom of the tube If the drop runs down the sides a low result will be obtained The second method is to use an appropriate volume of any convenient dilution of serum in isotonic sodium chloride solution, for example, 1 cc of a 1 25 dilution It is convenient to use a tuberculin syringe to measure the sample and make the dilution in a graduated centrifuge tube

2 Add 1 drop of glycerin urease extract

3 Shake or tap the tube so that all of the sample is completely mixed with the glycerin urease

4 Wait one minute

5 If permanent color standards are not available, prepare color standards in the expected range as follows Place 0 04 cc or 1 drop of serum in each of the 13 by 100 mm Pyrex tubes to be used as a color standard (In addition to the ammonium sulfate, each standard tube contains approximately the same amount of serum as the unknown tube This is essential, since the protein modifies the final color developed when Nessler's reagent is added) Add the appropriate ammonium sulfate with the tuberculin syringe Each 0 01-cc division on the syringe equals 1 mg per 100 cc Thus, to make a 20 mg per 100 cc standard, 0 2 cc of ammonium sulfate would be added to the tube

6 Dilute unknown and standard tubes to the 3 cc mark with isotonic sodium chloride solution

7 Add 1 dropperful of Nesslers reagent (0 7-1 0 cc) to each tube Since the color depends to some extent on the technique of adding the Nesslers reagent, the following standardized technique of addition is recommended Fill the dropper by means of a complete compression of the dropper bulb so that a relatively constant amount of reagent will be delivered Point the tip down the side of the 13 by 100 mm tube and deliver all the Nessler's reagent with one strong squirt that effects instant and complete mixing without producing bubbles

8 If the sample remains clear upon addition of Nessler's reagent, compare with the color standards to determine the concentration of urea nitrogen If the sample clouds, proceed immediately to the technique for high urea nitrogen levels (see below) If the sample color falls outside the range of the color standards, repeat the entire procedure, making up standards in the appropriate range Also remake the sample, as it will darken on standing more than a few minutes If a result of less than 10 mg per 100 cc is obtained, the test tube is probably contaminated with Nesslers reagent from the previous test and this has inactivated the urease

Following is the technique for high urea nitrogen levels

1 The sample size for this technique is 0 008 cc of serum or plasma This can be measured in one of two ways, depending on convenience and the accuracy desired The first method is to place 1 drop of serum measured with a dropper in a small test tube Rinse the dropper and add 4 drops of isotonic sodium chloride solution mixed One drop of this dilution will contain about 0 008 cc of original sample Since the color comparisons are quite accurate with elevated urea nitrogen levels, sample measurement with a dropper introduces a significant error Hence, if greater than ± 15% accuracy is desired, the second method of sample measurement should be used For this, use an appropriate volume of any convenient dilution of serum in isotonic sodium chloride solution For example, if a 1 25 dilution was previously prepared for the first part of the test, 0 2 cc of this could be used, which is equivalent to 0 008 cc of original sample

2 Measure the equivalent of 0 008 cc of original sample in each of 4 Pyrex test tubes (13 by 100 mm) that have been calibrated to 3 cc

3 Add 1 drop of glycerin urease to one of the four test tubes This becomes the unknown Wait one minute

4 Using the tuberculin syringe, add ammonium sulfate solution to each of the other test tubes to make standards in the range expected Usually one would make a 100, 150, and 200 mg per 100 cc standards It requires 0 2 cc of the standard ammonium sulfate for each 100 mg per 100 cc

5 Dilute with isotonic sodium chloride solution all four tubes to approximately the 3 cc mark, though the final volume need not be exact

6 Add 0 7 to 1 0 cc of Nesslers reagent, using the technique described above It is important that the same technique be used on all tubes

7 Wait one minute for full color development, and then compare the unknown with the standards by looking lengthwise down through the four tubes toward a white surface

8 Estimate the urea nitrogen level from this comparison

9 If the unkown falls outside the range of the standards, repeat the entire procedure, making appropriate standards Do not use the original unknown, as it may darken on standing more than a few minutes

Result

One hundred thirty samples were analyzed for urea nitrogen by the bedside method, and the results were compared with those obtained by the method of Van Slyke and Cope [2] with use of a Somogyi filtrate In the range of 4 to 30 mg per 100 cc of urea nitrogen the standard deviation on 95 samples was ± 3 0 mg per 100 cc, with a maximum deviation of 7 0 mg In the critical range of 18 to 22 mg per 100 cc the standard deviation on 22 samples was ± 2 1 mg per 100 cc, with a maximum deviation of 2 5 mg In the range of 30 to 100 mg per 100 cc the standard deviation on 22 samples was ± 4 5 mg, with a maximum deviation of 9 0 mg

The technique for high urea nitrogen levels, using accurately measured samples (rather than a dropper), gave the following results The reproducibility on duplicate determination was at least ± 3% When the results on 18 samples in the range of 100 to 300 mg per 100 cc were compared with those obtained by the method of Van Slyke and Cope [2] the standard deviation was ± 4 3 mg per 100 cc and the maximum deviation ± 15 mg

Sources of Error

Turbidity—When the sample size is 0 04 cc and the urea nitrogen concentration exceeds 100 mg per 100 cc, turbidity will usually develop in both unknown and standard tubes Since this can make comparisons inaccurate, all turbid specimens should be discarded and the test repeated with use of the 0 008-cc sample size and the technique for high urea nitrogen levels Nesslers reagent itself will become turbid on prolonged exposure to air, therefore, keep only a small supply in the kit Renew the supply in the kit if turbidity develops

Contamination—Test tubes should be rinsed thoroughly with water after each determination If any Nesslers reagent remains in the test tube, the mercury in the Nesslers reagent will inactivate the urease and no color will develop with the addition of Nessler's reagent

Jaundice and Hemolysis—Moderate to severe icterus and severe hemolysis make color comparison with the permanent color standards difficult and uncertain However, since ammonium sulfate color standards made up with the icteric serum also contain the interfering color, comparison is not a problem With icteric or hemolyzed serums, therefore, it is best to always make up ammonium sulfate color standards

Urease Deterioration—Urease may deteriorate after prolonged storage at room temperature, forming ammonia-containing products To test for deterioration, place 2 drops of urease in a 13 by 100 mm test tube and dilute to 3 cc Add Nesslers reagent Deterioration is indicated by the appearance within 30 seconds of color approaching the depth of the 10 mg per 100 cc standard

Checking Permanent Color Standards

The accuracy of the permanent color standards may be checked by comparing them to ammonium sulfate color standards prepared as described above

Clinical Applications

The simplicity of this technique for accurate measurement of urea nitrogen should make it possible to perform the test as a routine screening procedure on all patients from whom blood is drawn This test should also prove of value in the emergency evaluation of critically ill patients The technique for high urea nitrogen levels has a remarkable degree of reproducibility for such a simple test This makes it possible to detect small day-to-day changes in the degree of elevation of the urea nitrogen level in uremic patients Such information is of particular value in the management of patients with acute uremia

Summary

A simple, two-minute quantitative test for the direct determination of urea nitrogen level on serum or plasma is accurate enough for routine clinical use over the entire range of concentrations encountered in patients

4435 Beacon Ave (8) (Dr Scribner)

This study was supported in part by grants from Abbott Laboratories the American Heart Association, and the Schweppe Foundation

A complete test kit for this procedure, as well as separate items of equipment, including sets of permanent color standards, are manufactured by Rochester Products Co, Rochester Minn

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4 Scribner, B H and Caillouette, J C Improved Method for Bedside Determination of Bicarbonate in Serum, J A M A **155**.644-648 (June 12) 1954

5 Scribner, B H, and Wiegert H T Bedside Determination of Total Base in Serum J A M A **155** 639-644 (June 12) 1954

6 Vanselow A P Preparation of Nesslers Reagent Ind & Eng Chem Analyt Ed **12** 516, 1940

COUNCIL ON DRUGS

Formerly the Council on Pharmacy and Chemistry

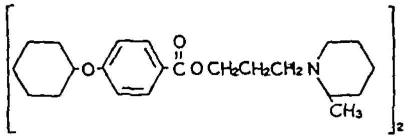
NEW AND NONOFFICIAL DRUGS

Formerly New and Nonofficial Remedies

Monographs and supplemental statements on drugs described here and in subsequent editions of New and Nonofficial Drugs are based on the evaluation of available scientific data and reports of investigations. Applicable commercial names for preparations of evaluated drugs are listed at the end of monographs and parenthetically in the text of supplemental statements, additional commercial names of which the Council is informed will be included with subsequently published supplemental statements and annual editions of New and Nonofficial Drugs.

H. D. Kautz, M.D., *Secretary*

Cyclomethycaine Sulfate.—3-(2-Methylpiperidino)-propyl *p*-cyclohexyloxybenzoate sulfate.—The structural formula of cyclomethycaine sulfate may be represented as follows:



Actions and Uses.—Cyclomethycaine sulfate, a topical anesthetic agent, belongs to the benzoic acid group of compounds, but its hydrolysis does not yield *p*-aminobenzoic acid. Hence, the anesthetic properties of the drug are not affected by concomitant sulfonamide therapy. Cyclomethycaine sulfate acts on damaged or diseased skin and on the mucosa of the rectum, vagina, urethra, and urinary bladder. The drug is relatively ineffective on the mucous membranes of the mouth, nose, trachea, bronchi, and eye. It does not penetrate the tympanic membrane and is, therefore, not beneficial in otitis media.

Cyclomethycaine sulfate is an effective topical anesthetic for abrasions and for certain types of surface skin lesions characterized by pain, pruritus, and cutaneous irritability. It also is useful for rectal and vaginal conditions in which pain arises in the mucous membrane or ulcerated fissures. After urethral instillation, the drug produces sufficient anesthesia to permit passage of sounds and cystoscopic examination. Cyclomethycaine has also been used for the relief of pain in burns. However, some experts in this field do not favor the use of topical anesthetics in burns, especially when large areas of the skin are involved, because of the increased hazard of systemic absorption.

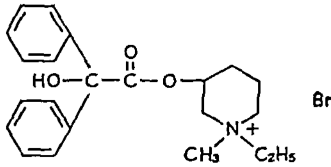
As with all topical anesthetic agents, cyclomethycaine sulfate carries a slight but predictable sensitizing potential when utilized on patients with allergies or in conditions of prolonged use. This fact should be borne in mind, especially when the drug is used in the rectum or vagina, although this potential is less than that with compounds comprising *p*-aminobenzoic acid; use of the drug should be discontinued immediately if manifestations of dermal or mucosal sensitivity occur.

Dosage.—Cyclomethycaine sulfate is applied topically as frequently as necessary to maintain surface anesthesia. For such use, the drug is administered in a suitable dermatological vehicle usually containing from 5 to 10 mg. per gram (0.5 to 1% concentration). For topical anesthesia of the rectum, 10 mg. of the drug may be administered, usually in the form of suppositories. For anesthesia of the urethra prior to urologic instrumentation, a jelly or solution containing 7.5 mg. per cubic centimeter (0.75% concentration) is used. The usual dose for intraurethral instillation is 2 to 10 cc. (15 to 75 mg.) in the male and 1 to 4 cc. (7.5 to 30 mg.) in the female.

Applicable commercial name: Surfacaine.

Eli Lilly and Company cooperated by furnishing scientific data to aid in the evaluation of cyclomethycaine sulfate.

Pipenzolate Methylbromide.—1-Ethyl-3-piperidyl benzilate methylbromide.—The structural formula of pipenzolate methylbromide may be represented as follows:



Actions and Uses.—Pipenzolate methylbromide, a synthetic anticholinergic agent with predominantly peripheral atropine-like effects, is closely related in chemical structure and pharmacological action to piperidolate hydrochloride. It is more potent than the latter agent, however, and produces a gastric antisecretory effect in addition to decreasing gastrointestinal motility. The drug appears to exert a more generalized spasmolysis than does piperidolate, since therapeutic doses usually affect the smooth musculature of the biliary tract also.

The chief clinical use of pipenzolate methylbromide is in the adjunctive treatment of peptic (gastric and duodenal) ulcer. It is no more effective than atropine in relieving hypermotility, however, it does decrease gastric secretion, thereby being somewhat more advantageous than atropine for this purpose. It should be borne in mind that anticholinergic therapy for peptic ulcer should be adjunctive to proper dietary management Pipenzolate also relaxes spasm of the lower gastrointestinal tract and the sphincter of Oddi and may therefore prove useful for the treatment of ileitis, the irritable colon syndrome, and other functional disorders of the gastrointestinal or biliary tracts

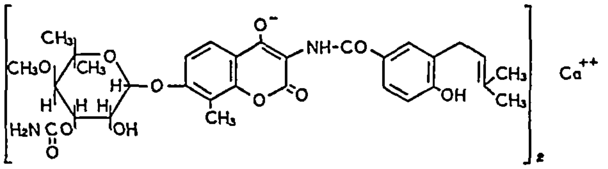
Side effects associated with pipenzolate therapy are chiefly atropine-like in nature but, after therapeutic doses, are less severe and less frequent than with the belladonna alkaloids No serious toxic reactions have been reported, however, the same precautions and contraindications should be observed with pipenzolate methylbromide as with other agents of this class

Dosage —Pipenzolate methylbromide is administered orally The average dose for adults is 5 mg three times daily before meals and 5 to 10 mg at bedtime, however, dosage must be individualized to fit the needs and response of the particular patient

Applicable commercial name Piptal

Lakeside Laboratories, Inc, cooperated by furnishing scientific data to aid in the evaluation of pipenzolate methylbromide

Novobiocin Calcium —The calcium salt of an antibiotic substance produced by fermentation from cultures of Streptomyces niveus —The structural formula of novobiocin calcium may be represented as follows

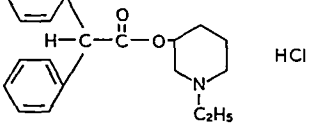


Actions, Uses and Dosage —Novobiocin calcium has the same actions and uses as novobiocin sodium It differs from the latter salt chiefly in being less alkaline and more stable in a liquid form Accordingly, the calcium salt is primarily suited for oral administration in liquid form, especially for pediatric use or for those patients who prefer liquid medication to a solid form of the antibiotic Novobiocin calcium is administered in the same dosage as the sodium salt (See the monograph statement on novobiocin sodium in THE JOURNAL, Feb 23, 1957, page 646)

Applicable commercial name Albamycin Calcium

The Upjohn Company cooperated by furnishing scientific data to aid in the evaluation of novobiocin calcium

Piperidolate Hydrochloride —1-Ethyl-3-piperidyl diphenylacetate hydrochloride —The structural formula of piperidolate hydrochloride may be represented as follows



Actions and Uses —Piperidolate hydrochloride, a synthetic derivative of a piperidol, antagonizes acetylcholine, chiefly at cholinergic nerve endings Except in high doses, it does not block ganglions or inhibit transmission to skeletal muscle Its effects on the central nervous system, on conduction within the heart, or on blood pressure, are minimal The principal pharmacological actions of the drug are referable to inhibition of postganglionic parasympathetic nerve impulses Thus, it may be classified as an anticholinergic agent with predominantly peripheral atropine-like effects The clinical use of piperidolate hydrochloride is based on its ability to decrease motility of smooth muscle There is evidence to indicate a high degree of specificity of the drug for the smooth muscle of the gastrointestinal tract, in therapeutic doses, it does not produce appreciable effects on the musculature of the biliary tract Likewise, the drug has little, if any, effect on gastric secretion After oral administration, demonstrable decreases in gastrointestinal motility are apparent within 10 to 20 minutes This rapid action has been attributed to a local anesthetic effect

Piperidolate hydrochloride has been used for the adjunctive management of functional gastrointestinal disorders characterized by pain, spasm, and hypermotility The spasmolytic effect of the drug is more pronounced on the upper than on the lower portion of the gastrointestinal tract, thus it will inhibit gastroduodenal spasm, pylorospasm, and cardiospasm but is without appreciable effect on spasm of the colon It has been demonstrated to relieve the spasm of the biliary sphincter and has been used clinically in various forms of biliary dyskinesia and other biliary disorders accompanied by spasm, as well as in various types of gastric neurosis and irritability

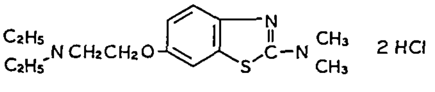
In therapeutic doses, piperidolate hydrochloride appears to be less toxic than atropine or other synthetic anticholinergic agents It produces little xerostomia, dilation of the pupil, tachycardia, constipation, or other atropine-like side-effects No urinary retention or increased intraocular pressure has so far been reported after its administration Owing to its anticholinergic classification, however, the drug should be used with caution in patients with prostatic hypertrophy or glaucoma

Dosage —Piperidolate hydrochloride is administered orally The dosage is governed by the severity of symptoms and the individual response The average dose for adults is 50 mg four times daily, preferably before meals and at bedtime

Applicable commercial name Dactil

Lakeside Laboratories Inc cooperated by furnishing scientific data to aid in the evaluation of piperidolate hydrochloride

Diamthazole Dihydrochloride —6-(2-Diethylaminoethoxy)-2-dimethylaminobenzothiazole dihydrochloride —The structural formula of diamthazole dihydrochloride may be represented as follows



Actions and Uses —Diamthazole dihydrochloride, an antifungal agent, is active in vivo against dermatophytes of the genera Trichophyton and Microsporum and against the monilial organism, Candida albicans Its activity against bacteria and the common nonpathogenic molds is negligible Although the precise mechanism of its antifungal action is imperfectly known, diamthazole has shown fungistatic properties in vitro, it also exerts a mild keratolytic effect and possesses antisporulating properties The drug exhibits good diffusibility on the skin and, when applied in moderate amounts to noninflamed dermal areas, is not absorbed to an appreciable extent into the systemic circulation

Diamthazole dihydrochloride is used clinically for the treatment of superficial fungal infections caused by trichophytons, microsporums, and C albicans Repeated daily use has produced satisfactory results in chronic cases of tinea pedis (athlete's foot) Tinea capitis (ringworm of the scalp) caused by M audouini or M lanosum also responds to its use The latter type of infection, however, often produces an inflammation or kerion and may react adversely to the drug if it is administered during this pyodermic phase Cure rates for tinea capitis after use of diamthazole dihydrochloride range from 50 to 70% Thus, the drug is not as effective as x-ray epilation, which can be expected to effect a cure rate of almost 100% when carried out by skilled personnel The drug may be used in place of x-ray therapy in situations in which adequate facilities and personnel are not available or when total epilation is considered objectionable Diamthazole may also be used for the treatment of tinea cruris, tinea corporis, and tinea versicolor Dermatomycoses such as paronychia and onychomycosis caused by C albicans have likewise been successfully treated with this agent Since the drug is ineffective against bacteria, it may be necessary to administer suitable antibiotic agents along with diamthazole in order to combat concomitant or superimposed pyogenic infections of the skin

In infants and very young children, ataxia, tremors, convulsions, hallucinations, and behavior changes have been reported after use of this drug, but there is more than a suggestion that these effects are due to sucking of fingers or of impregnated skull caps rather than to percutaneous absorption Until more information can be accumulated, diamthazole dihydrochloride is nevertheless contraindicated in children under 2 years of age and should be used in reduced amounts in patients between the ages of 2 and 10 Also because of its possible neurotoxicity, the drug should not be used over extensive areas of the skin for the treatment of superficial fungus infections or tinea versicolor Therapy should not be initiated during the acute or pyodermic phase of any fungus infection, and the drug should be applied on mucous membranes with caution In adults, the only reported signs of toxicity are occasional local irritation and sensitization In the event of these dermal manifestations or any systemic reaction, the use of the drug should be discontinued immediately

Dosage —Diamthazole dihydrochloride is administered topically to infected areas of skin The drug is usually employed in 5% concentration in a suitable dermatological vehicle

For tinea pedis, the acute or pyodermic phase of the infection should be pretreated with a 1 30 solution of aluminum acetate or a 1 10,000 potassium permanganate solution Once the acute phase has subsided, the infected skin is treated once or twice daily with a 5% tincture of diamthazole dihydrochloride, a 5% ointment is applied at night A 5% dusting powder may be sprinkled into shoes and stockings daily during treatment and afterwards to prevent recurrence

For tinea capitis, hair should be clipped from the infected areas and the scalp washed frequently with a bland soap, the drug is then applied as a 5% tincture during the day, and a 5% ointment is rubbed into the infected areas before retiring This daily regimen should be continued for at least three weeks after the first negative Wood's light examination The drug should never be administered during the kerion phase of the infection

For tinea versicolor, a 5% ointment is applied daily to the infected areas after a soap and water scrub Although the infection is often more widespread than is clinically evident, the potential toxicity of the drug precludes its application to the entire body A 5% dusting powder may be used to prevent recurrence or reinfection

A 5% ointment or tincture of diamthazole dihydrochloride is applied twice a day to the involved areas for the treatment of tinea cruris, tinea corporis, paronychia, or onychomycosis

Applicable commercial name Asterol Dihydrochloride

Hoffmann-La Roche Inc cooperated by furnishing scientific data to aid in the evaluation of diamthazole dihydrochloride

Use of Sodium Acetrizoate for Urethrography

The Council has evaluated the usefulness and safety of sodium acetrizoate for retrograde urethrography A preparation of the drug intended for this purpose (Thixokon) is rendered viscous by the addition of a relatively inert, nontoxic thickening agent Nonviscous solutions of sodium acetrizoate (Urokon Sodium) have previously been described in N N R as suitable for intravenous (excretory) urography, retrograde pyelography, intravenous nephrography and angiocardiography, translumbar arteriography, and intraductal cholangiography On the basis of additional evidence, the Council concluded that the thickened solution of sodium acetrizoate is a useful contrast medium for the visualization of the lower urinary tract, including the urethra and its adnexa, the bladder neck, and under certain circumstances, the bladder mucosa Except for occasional irritation to the urethra, the drug has not produced any serious side-effects or toxic reactions It should nevertheless be administered with caution to patients with a definite history of allergy because of the possible occurrence of urethrovascular invasion

For urethrography, 20 to 30 cc of a 50% solution of the viscous material is introduced into the urethra by slow retrograde injection Roentgenographic exposure is made at the end of the injection If the patient has retained urine for two to three hours prior to examination, a satisfactory cystogram is obtained as well After intraurethral injection of the drug, exposures made during micturition also provide adequate voiding urethrograms

The Council voted to amend New and Nonofficial Drugs accordingly to describe this additional use of sodium acetrizoate

Mallinckrodt Chemical Works cooperated by furnishing scientific data to aid in the evaluation of sodium acetrizoate for urethrography

COUNCIL ON FOODS AND NUTRITION

Report to the Council

The following paper was presented at the symposium, "The Relation of Proteins and Amino Acids to Human Nutrition," in Los Angeles, May 21, 1956. The symposium was sponsored by the Council on Foods and Nutrition, with the cooperation of the Los Angeles County Medical Society and the School of Medicine, University of California at Los Angeles. This report is the second of the series. After publication of the sixth and final report, this series will be available in monograph form.

PHILIP L. WHITE, Sc.D., *Secretary*

NITROGEN BALANCE AND THE NUTRITIVE VALUE OF PROTEINS

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Dietary proteins furnish the amino acids for synthesis of tissue proteins and for other special metabolic functions. Synthesis includes the rebuilding of tissue proteins that are being broken down continuously as well as the formation of the new proteins during growth. The process of synthesis is called anabolism, the process of breakdown, catabolism. For anabolism, the amino acids may be pictured as being activated and arranged in their proper places on the surface of an appropriate catalyst, there to be joined together through peptide linkages into a specific long polypeptide chain. This chain may then wind off the catalytic surface into a structure characteristic of the tissue protein formed by that catalyst.

Dynamic State

Some tissue proteins are continuously being broken down and resynthesized, thereby creating a dynamic state in which nitrogen may flow from one tissue to another. This concept was revealed by the work of Whipple [1] and associates and given even more reality by recent experiments involving amino acids tagged with heavy nitrogen or radioisotopes.[2] Amino acids enter a dynamic metabolic pool contributed to by both dietary and tissue proteins, a pool to supply all of the amino acids needed for both catabolic and anabolic reactions.[3] This pool can be described as a summation of protein metabolism in many centers integrated into the dynamic state of the body as a whole. It is assumed that each center, at the cellular level, demands a properly balanced mixture of amino acids for anabolism, the amino acids being derived in part from extracellular sources.[4] The rate of turnover of different proteins, however, varies greatly, some being very labile, some less so, and some so stable that they draw from, but contribute little or nothing to, this metabolic pool. Such a dynamic state can result in the maintenance of one tissue at the expense of another.

The dynamic state of catabolism and anabolism in animals, in whom dietary and tissue amino acids are pictured as forming common metabolic pools, makes difficult the separation of the metabolism of amino acids from food (exogenous) from the metabolism of amino acids from tissues (endogenous). The concept of an endogenous metabolism, however, is valuable for recognizing certain metabolic pathways. Endogenous metabolism, for example, is often identified with the formation and excretion of creatinine, a substance essentially independent of amino acid intake, whereas exogenous metabolism is associated with the excretion of urea, which varies with the quantity and quality of dietary protein. The formation of creatinine, arising from special energy pathways involving creatine, can be correlated best with the functional nuclei of the muscle mass, the origin of urea can be associated with catabolism of amino acids of the metabolic pool. The excretion of creatinine can be increased by the addition of methionine and glycocyamine to the diet, another example of the ultimate effects that diet can exert upon most, if not all, body reactions.

Essential Amino Acids

Twenty-two different amino acids ordinarily are required for synthesis of tissue proteins, and the absence of any one of them could prevent the formation of the polypeptide. The body can synthesize and mobilize the majority of these amino acids from dietary sources, but the classic studies of Rose [5] and his associates have demonstrated that some of the amino acids cannot be synthesized in amounts adequate for metabolic needs. These are called essential, the others nonessential. The essential amino acids must be provided *de novo* every day in the diet in proper amounts and proportions, together with an adequate supply of the nonessential amino acids or some nitrogen compound or compounds to provide the NH_2 groups needed for their synthesis, if protein synthesis and other metabolic functions are to take place normally. Examples of other functions are the formation of the hormones thyroxin or adrenalin from the amino acid tyrosine or the methylation of glycocyamine by amino acid methionine to form creatine, an essential compound in muscle metabolism.

The amount of nitrogen retained in the body is correlated, therefore, with the pattern of essential amino acids provided by the dietary protein. If that pattern is perfect for synthetic purposes, then the

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dietary nitrogen fed, if not given in excess of synthetic needs, would be used in its entirety to build body protein Such a pattern of essential amino acids is approached in egg white (table 1) The reference pattern of essential amino acids for growth in rats and dogs, listed in the first line of the table, was estimated from experiments on the requirements for growth and repletion of soft tissues in animals

The reference pattern is calculated to simulate a dietary protein so that it can be compared with those of the food protein sources also listed in table 1 The pattern should not be taken as final but rather as a step toward determining a reference It will vary from species to species and with the physiological state of the animal Some of the essential amino acids recorded for dietary protein sources are in relative excess of values recommended in the reference pattern Experimental data on the effects of amino acid imbalances indicate that, if the excesses are sufficiently great, the nutritive value would be reduced [6] However, the data to be presented in this paper, together with information from the literature,[3] suggest that most of the nutritive values of natural protein sources are limited more by deficiencies in one or more of the essential amino acids than by excesses

Nitrogen balance is, however, the algebraic sum of gains and losses of nitrogen in all the metabol centers throughout the living system It is possibl for the body as a whole to be in positive balance an still lose nitrogen from some tissues A striking example of this summation is the balance that develop in rats with a transplanted sarcoma in which th tumor-bearing body is in positive balance The growing sarcoma, entering the dynamic state of the body draws from, but contributes little to, the welfare o the tissues through a common metabolic pool It i in positive balance, the liver also may be gaining i nitrogen, but the other soft tissues of the body ar often losing labile protein stores [6a]

These labile stores are the cytoplasmic proteins an the blood proteins, particularly plasma albumin, tha rise or fall as the supply of amino acids increases o decreases in the diet When these stores are fille maximally in the adult, catabolic activity is high, an the excretion of urea nitrogen derived from that activity is high A relatively large amount of dietary nitrogen is needed to maintain these full stores Expresse in terms of nitrogen balance, maintenance is established when the nitrogen intake just equals nitroge excretion Under these conditions nitrogen balanc is zero, and the individual is said to be in nitroge equilibrium At equilibrium, the over-all catabolisn of tissue nitrogen is equaled by anabolism If, at an time, the amino acid intake, expressed as nitrogen, i not adequate to maintain these stores, they will b depleted through excess catabolism Under these conditions nitrogen intake will be less than the nitroge excretion so that nitrogen balance will be negative an the body will be losing nitrogen Negative balance therefore, means depletion in the labile protein stores Continued feeding of a diet deficient in amino acid will cause a reduction in catabolic activity, as measure by excretion of urea nitrogen, and a reduction in th amount of nitrogen needed to maintain the individua in nitrogen equilibrium

These labile protein stores provide a mechanisn for the individual to adapt to various protein intakes For example, a person with full stores who require a high nitrogen intake for maintenance but who i placed on a lower nitrogen intake will go into negativ balance, thereby losing body nitrogen The resultan reduction in catabolism eventually brings about nitrogen equilibrium at the lowered intake Conversel an individual with reduced stores who is placed on a diet to produce positive balance will gain in bod nitrogen The increase in catabolic activity at th higher nitrogen intake will then produce equilibrium

TABLE 1 —*Estimated Patterns of Amino Acids for Growth of Soft Tissues and for Maintenance of Nitrogen Equilibrium in Animals Compared with Patterns of Several Food Protein Sources*[*]

Pattern	Isoleucine	Leucine	Lysine	Methionine	Cystine	Phenylalanine	Threonine	Tryptophan	Valine
Reference for growth in rats and dogs	4 2	5 6	5 0	2 0		4 2	3 0	1 1	4 7
Egg white	6 4	8 8	7 2	4 2	3 2	5 9	4 0	1 2	7 5
Egg powder	9 0	6 2	6 1	3 2	2 3	5 6	4 9	1 1	7 0
Beef	5 2	7 8	8 6	2 7	1 5	3 9	4 4	1 0	5 1
Casein	6 3	10 0	8 1	3 2	0 4	5 4	4	1 0	7 4
Peanut flour	4 1	7 1	3 5	0 8	2 8	4 9	2 8	0 8	4 6
Wheat gluten	4 5	7 2	2 0	1 7	2 4	5 0	2 8	0 8	4 3

[*] From Allison [3] All units in grams per 100 Gm of protein

If the food protein is deficient in one or more of the essential amino acids, tissue protein synthesis will be restricted, and some of the dietary amino acids will enter catabolic pathways, leading to the formation and excretion of nitrogen primarily in the form of urea The pattern of amino acids illustrated by wheat gluten in table 1 is deficient in lysine and in tryptophan for maximum retention for synthetic purposes For that reason, feeding wheat glutens increases the excretion of urinary nitrogen and results in a lower rate of synthesis of tissue proteins than that observed when egg proteins are included in the diet

Nitrogen Balance

The retention of nitrogen in the body is usually expressed as a nitrogen balance (B), which can be defined by the following equation in which I is dietary nitrogen intake, U is urinary nitrogen, and F is fecal nitrogen excreted $B = I - (U + F)$ Neglecting the small loss of nitrogen through the skin in man, if nitrogen intake (I) is greater than the nitrogen excreted in the urine and feces (U + F), then the balance (B) is a positive figure and the body is gaining in nitrogen A positive nitrogen balance means that the over-all anabolism of tissue nitrogen exceeds catabolism Growing individuals would always be in positive balance Similarly, adults should be in positive balance if they are in need of filling the protein stores [7]

Absorbed Nitrogen and Digestibility

The amount of nitrogen retained is accurately expressed as a function of the amount of dietary nitrogen absorbed into the body. Absorbed nitrogen (A) can be estimated according to the following equation in which I is dietary nitrogen intake, F is total fecal nitrogen, and F_m is fecal nitrogen of body origin, $(F - F_m)$ thereby being fecal nitrogen of dietary origin. $A = I - (F - F_m)$. The value of F_m is customarily determined by measuring the excretion of nitrogen while the individual is being fed a protein-free diet. The assumption is that subsequent feeding of nitrogen will not alter this value of F_m. Digestibility (D) can then be calculated as follows: $D = A/I$.

Digestibility is a very important factor in determining the nutritive value of a dietary protein. For example, raw egg has an antitryptic factor that slows up digestion in the small intestine. Ordinarily this factor is inactivated by gastric juice, however, in dogs depleted in protein stores, inactivation does not occur so that digestion, absorption, and retention of raw egg protein are poor. A similar poor digestibility of raw egg protein has been reported in puppies. Cooking the egg denatures the antitryptic factor, thereby improving the digestibility and nutritive value of egg protein in these animals. Proper cooking in the presence of water also improves the digestion and nutritive value of soybean protein, possibly by denaturing similar factors and by altering the protein. As a result, methionine and other amino acids are liberated more rapidly, providing a better over-all pattern for absorption.[8] Overheating, particularly in the absence of water, can also reduce the nutritive value of proteins by destruction of essential amino acids or by tying them up in new chemical linkages not susceptible to enzymatic digestion.

Nitrogen Balance Index

One of the most valuable ways of estimating the nutritive value of absorbed nitrogen is to measure the rate (K) of change of nitrogen balance (ΔB) with respect to absorbed nitrogen (ΔA), the rate being expressed as follows: $\frac{\Delta B}{\Delta A} = K$

The rate (K) called the nitrogen balance index of absorbed nitrogen is a function of the efficiency of retention of nitrogen for anabolism.[9] Nitrogen balance indexes for absorbed nitrogen are illustrated graphically in figure 1, which shows nitrogen balances produced in dogs fed various amounts of different proteins. The series of curves, originating at a negative balance of -4 Gm. per day per square meter of body surface area, present data obtained while feeding various proteins to dogs with full protein stores. Since the tissue stores are full, catabolic activity is high in these animals. The amount of nitrogen needed to maintain nitrogen equilibrium is relatively high—approximately 4 Gm. per day per square meter of body surface area for egg protein, 5.2 Gm. for beef, 5.5 Gm. for casein, 7.1 Gm. for soybean, and 9.1 Gm. for wheat gluten. In figure 1 the curves are linear throughout the region of negative balance, and the slopes, which are the nitrogen balance indexes, are constant. Under these conditions the catabolism of tissue protein may be constant and independent of nitrogen intakes. If this is true, then the indexes become the fraction of absorbed nitrogen retained in the body of the animal, a fraction defined as the 'biological value' of the dietary proteins. This concept of biological value has been developed in detail by Mitchell,[10] who has contributed much to our understanding of the utilization of dietary nitrogen by the body.

TABLE 2.—*Nitrogen Balance Indexes for Absorbed Nitrogen Determined for Six Proteins**

Subject	Egg Powder	Egg White	Beef	Casein	Peanut Flour	Wheat Gluten
Man adult	0.94	0.91	0.67	0.68	0.56	0.42
Dog adult	0.87	1.14	0.77	0.73	0.56	0.44
Rat adult	0.82	0.94	0.69	0.51	0.46	0.65
Rat growing	0.87	0.94	0.76	0.69	0.54	0.40

* From Allison.[3]

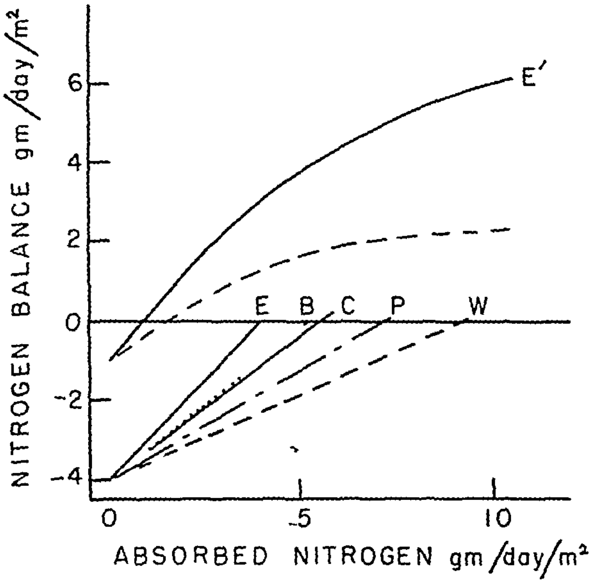

Fig. 1.—Relationship between nitrogen balance and absorbed nitrogen in adult dogs with full protein stores fed the following protein sources: egg, E, beef, B, casein, C, peanut flour, P, and wheat gluten, W. E′ and the dash line represent data obtained while feeding protein-depleted dogs proteins of high and low nutritive value respectively.

The nitrogen balance indexes (biological values) of the six proteins for maintenance in man,[11] dog, and the rat[12] are recorded in table 2. The index for egg protein is close to unity, which can be interpreted to mean that all of the absorbed nitrogen is retained for synthetic purposes, since the pattern of amino acids absorbed is adapted to anabolism. Cystine is not considered an essential amino acid, but, because of the interrelationship between methionine and cystine, the reference pattern for the two are recorded together in table 1. Methionine can be used for the biosynthesis of cystine. Similarly, phenylalanine can be converted into tyrosine, thereby correcting a deficiency of tyrosine if such a deficiency is present in the dietary protein source. Comparing the pattern for egg protein with the reference patterns for growth, the conclusion could be reached that there are excessive amounts of some of the amino acids for protein anabolic needs

Indexes greater than 0 7 represent a protein of relatively high nutritive value The lower index of beef and casein may be associated primarily with a small deficiency in sulfur amino acids needed in relatively large amounts in rats and dogs Adding an optimum amount of methionine to casein increases the index to unity or to slightly above that for egg protein The very low value for wheat gluten is primarily due to a low lysine content Adding an optimum amount of lysine increases the index in dogs to 0 74 the value obtained for casein Obviously, when a protein such as unsupplemented wheat gluten is fed to an adult dog to maintain equilibrium, less than half of the nitrogen fed can be retained for anabolism, and the rest of the amino acids are catabolized, thus increasing the excretion of urea nitrogen The index for wheat gluten in the adult rat, on the other hand, is of the same order of magnitude as the value for casein This high value for maintenance in the rat has been interpreted by Mitchell [13] to mean that this animal can synthesize sufficient lysine to meet the requirement for maintenance, the low index for growth (0 4) would mean that lysine cannot be synthesized adequately for growth Thus the dietary pattern of amino acids needed by the animal may vary with the physiological state The data would indicate, however, that the pattern for synthesis of tissue proteins for growth or repletion of depleted tissues is essentially the same for man, dog, and the rat

TABLE 3 —*Uptake and Retention of S^{35} from Methionine in Normal and Depleted Tissues in the Rat*

		S^{35}		
Tissue	Diet	1†	8†	15†
Liver	18% Casein	196	144	82
Liver	Protein free	192	311	143
Heart	18% Casein	191	98	85
Heart	Protein free	204	198	192

* All units in micrograms per gram of protein
† Time after injections days

The amount of dietary protein needed for maintenance in humans fed an ideal pattern of amino acids has been estimated to be approximately 0 5 Gm per day per kilogram of body weight Using this value the requirements for maintenance expressed as grams of protein per day per kilogram of body weight would be egg powder 0 53 egg white, 0 55, beef 0 75, casein, 0 74, peanut flour, 0 90, and wheat gluten 1 2 The value of 1 Gm of protein per day per kilogram often recommended for maintenance in an adult is based on an average diet containing protein varying between peanut flour and casein in nutritive value Also in the recommendation the provision of sufficient nitrogen for building the protein stores adequately is considered However, simply to increase nitrogen intake of a poor protein to meet requirements for equilibrium, which could be done, for example, by feeding 1 2 Gm of wheat gluten per day per kilogram of body weight, does not mean that the physiology of the animal is kept at optimum Feeding a large quantity of a protein of poor pattern for anabolic needs may increase some of the essential amino acids much above requirements thereby creating imbalances that can alter the development of tissues The effects of imbalances, particularly in rats fed a low nitrogen intake have been demonstrated by Elvehjem [6b] Some of the gross effects of amino acid imbalance may actually be the result of competition for passage across cell membranes before anabolism can take place The limitation of protein anabolism by faulty dietary patterns, regardless of nitrogen intake, will be revealed further in the following data

One way to determine the degree of depletion of protein stores in an adult is to determine the degree of positive nitrogen balance that can be produced by a given nitrogen intake, since the greater the depletion the greater the positive balance Most species, including man, do not ordinarily have full stores, hence, they can be put more or less into positive balance until those stores are filled maximally Curve E′ in figure 1 records the data obtained after feeding various amounts of egg protein to a dog badly depleted of protein stores The labile protein stores were reduced in this animal, catabolic activity was low, and very little nitrogen was needed to maintain the depleted state By feeding egg protein, a high positive balance was obtained, showing a great potential for anabolic activity to replenish the depleted stores Repletion by feeding a poor pattern of amino acids is illustrated by the broken curve, such data being obtained while feeding different amounts of protein of low nutritive value No matter how much of this protein was fed, the nitrogen stores could not be filled so rapidly as with egg protein Repletion with a deficient protein such as wheat gluten did not fill the stores so uniformly as did egg protein, resulting in an animal with an imbalance in tissue proteins In general, the nitrogen-balance index for a given pattern of amino acids is higher in the depleted than in the normal animal, a fact which has been interpreted to mean that the reduction in over-all catabolic activity in the depleted state is associated with an increased potential anabolic activity Such an interpretation is supported by the increased retention by various depleted tissues of radioactive sulfur (S^{35}) from methionine labeled with this isotope (table 3)

Growth

The curves in figure 1 have been interpreted to mean that the anabolic efficiency of wheat gluten is much less than that of egg white, no matter how much of the wheat gluten is fed The data showing positive balances were obtained in animals depleted of protein in which the dietary protein was called upon to promote anabolism of repletion The amino acid requirements for repletion are similar to those for growth of new tissues in the young The data in table 4 illustrate the relative protein anabolic efficiencies of egg powder,

TABLE 4 —*Body Weight Gain per Nitrogen Intake, and Nitrogen Balance per Gram of Nitrogen Intake in Beagle Puppies During Fast-Growing Period**

Protein Source	Body Weight Gain/ Nitrogen Intake	Nitrogen Balance/ Nitrogen Intake
Egg powder	10	0 60
Casein	9 8	0 43
Wheat gluten	5 8	0 18

* From Allison [9]

casein, and wheat gluten for growth[9] These ratios were obtained while feeding puppies sufficient food to obtain approximately the same body weight gain per gram of nitrogen intake in an attempt to produce maximum anabolic activity with a poorer protein such as wheat gluten The data demonstrate that the puppies fed the egg powder gained more nitrogen than those fed casein and that the nitrogen gain in animals fed wheat gluten was very low The animals fed the wheat gluten diet were fat but restricted in development of soft tissues, whereas those fed the egg protein were lean and muscular If the amino acid pattern is too deficient in certain of the essential amino acids, increasing the nitrogen intake of the deficient pattern will not promote protein anabolism to the extent obtained with a better pattern Indeed, feeding larger amounts of the deficient pattern produces an imbalance between fat and lean body mass, resulting in deficiences in some tissue proteins With our present knowledge, it is difficult to establish a dividing line that would make a simple increase in food intake a safe correction for low nutritive value The body, however, does have great adaptive abilities to correct for dietary errors, and possibly a general rule for calculating protein intake would be as follows If the biological value of the dietary protein is greater than 60% of the values obtained for egg or milk proteins the protein intake may be increased to obtain the maximum anabolic activity of the protein This should be done in such a way that the proper balance between caloric and protein intakes is maintained If the biological value of the dietary protein is 60% or less than values obtained for egg or milk proteins, the pattern should be improved by supplementation This supplementation can often be done by proper mixing of various foods or food proteins, helping to correct the amino acid imbalance of the other Supplementation would be particularly important to correct the diet of infants in whom the requirements for essential amino acids per kilogram of body weight may be 10 or more times the requirements for maintenance in the adult

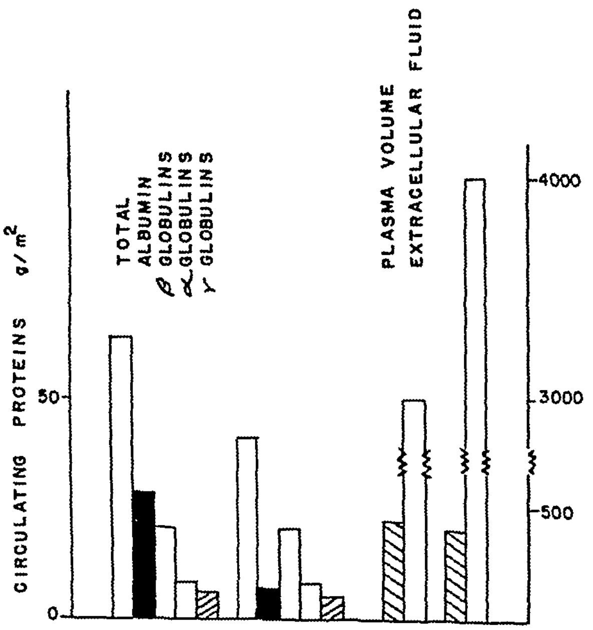

Fig 2 —Circulating proteins in normal dogs (*A*) and in protein depleted dogs (*B*), together with plasma volume and extracellular fluid in normal animals (*C*) and depleted animals (*D*) Data from Allison[14]

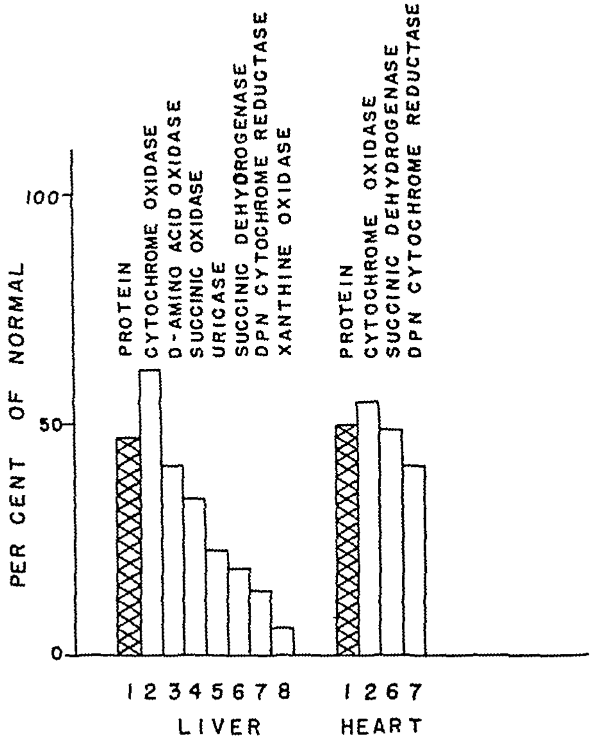

Fig 3 —Enzymatic activities in the liver and heart of protein-depleted rats Data from Allison[14]

Imbalance of Protein Stores

The imbalance in protein stores that develops as a result of protein deficiencies can be illustrated by the shifts that take place during a period of feeding of a low-nitrogen or protein free diet Changes that develop in the circulating plasma proteins of individuals depleted in protein stores are illustrated by the data in figure 2 The plasma albumin is reduced, plasma volume drops, and extracellular fluid increases Total circulating globulins are not decreased greatly and may even increase, particularly in the presence of some debilitating conditions Usually the concentration of plasma proteins decreases, resulting in a hypoproteinemia of depletion Sometimes the fall in plasma volume is so great that, despite the reduction in total circulating proteins, the concentration is still within so-called normal variation

The greatest imbalance associated with depletion is usually observed in the liver Here many, possibly most, of the *labile* protein stores are enzymes, concentrations of which can be described in terms of enzymatic activity as in figure 3[14] Some enzymes, such as xanthine oxidase, are greatly reduced in activity, others, like cytochrome oxidase, may be increased relative to the total liver protein This imbalance in the liver results in altered liver function, which can be detected in many ways One of the most dramatic is to measure the ability of the liver to detoxicate some toxic substance like 2-fluorenamine. This compound is acetylated in the liver of dogs and progressively oxidized, becoming more and more polar until final breakdown into oxidized products. The excretion of a heat-labile, water-soluble derivative has been taken as a measure of the degree of detoxication, the more of this intermediate product excreted, the less complete the detoxication. The effect of dietary casein concentration upon acetylation and detoxication of 2-fluorenamine in dogs is illustrated in table 5.[15] Animals fed the diet free of protein developed the typical imbalance in enzyme systems associated with depletion and, under these conditions, excreted 2.4 mg. of the heat-labile amine. Feeding precisely the amount of casein needed to maintain nitrogen equilibrium in these animals (6.3% casein) reduced the excretion of the amine to 1.3 mg. The diet fed these animals contained vitamin B complex in amounts thought to be adequate for growth. Increasing the pantothenate concentration increased the activity of the liver enzyme involved in acetylation of the amine, leading to an increased excretion of the acetylated product and a reduction in the excretion of the heat-labile intermediate oxidation product. Complete elimination of this intermediate product was obtained after feeding a relatively high-protein diet supplemented with riboflavin, evidently by stimulating the synthesis of liver enzyme systems. Thus effective doses of anesthetics, chemotherapeutic agents, and other medicines may vary greatly with the physiological state of the labile protein stores.

TABLE 5.—*Effect of Dietary Casein Concentration on Acetylation and Detoxication of 2-Fluorenamine in Dogs**

Dietary Casein, %	Acetylated Amine	Water Soluble Heat Labile Amine
0	0.05±0.01	2.4±0.1
6.3	0.05±0.01	1.3±0.1
6.3 + Pantothenate	0.3[illegible]±0.07	0.4±0.2
25	0.12±0.01	0.9±0.[illegible]
25 + Riboflavin	0.11±0.01	0

* From Allison.[1] All units in milligrams per kilogram of body weight.

Caloric Intake

The proper correlation of caloric with protein intake is important to develop maximum anabolism with the desired proportions of fat to lean body mass. Certain general principles are evolving from various studies between caloric and protein intakes that may be reviewed briefly.[16] There is an optimum caloric intake for maximum protein anabolism, but it varies with protein intake and with the physiological state of the individual. Reducing the calories somewhat below this optimum increases protein catabolism, increasing the quantity of dietary nitrogen needed for maintenance of equilibrium, however, it need not alter the efficiency of utilization of dietary amino acids for anabolism. The data can be interpreted to mean that the individual catabolizes some of the amino acids of the body pool when ingested calories are restricted. A large reduction in calories depletes the protein stores rapidly, but, as the stores decrease, the caloric requirements seem to decrease. The individual also becomes adapted to some extent to the restricted diet.

The data plotted in figure 4 illustrate the response of dogs in various physiological states to caloric restriction. The bars over *A* in this figure illustrate the effect on nitrogen balance of a decrease in caloric intake in dogs fed a constant protein intake. The nitrogen balance decreased in value as the caloric intake was reduced from 3,190 to 2,860 and to 480 calories per day per square meter of body surface area, becoming negative in animals fed the lowest caloric intake. These results illustrate the increased catabolism and loss of nitrogen associated with caloric restriction. Further data suggest that, as the protein stores are increased, catabolic activity increases and caloric requirements are higher. The latter are maximum when the stores are completely filled. Thus, when calories are restricted in an animal with full protein stores, the animal dips deeply into these stores, thereby greatly increasing the excretion of nitrogen. The negative nitrogen balance over *B* in figure 4 was obtained in a dog with full protein stores that was fed 480 calories per day per square meter of body surface area. On the other hand, if the stores are low, catabolic activity is low and the caloric requirements seem to be minimum. Therefore, positive nitrogen balance was produced in a depleted dog (see *C*, fig. 4) fed the same amount of protein and the same low amount of calories fed to dog *B*. Restricted caloric intake for the depleted animal, however, will eventually result in irreversible tissue damage.

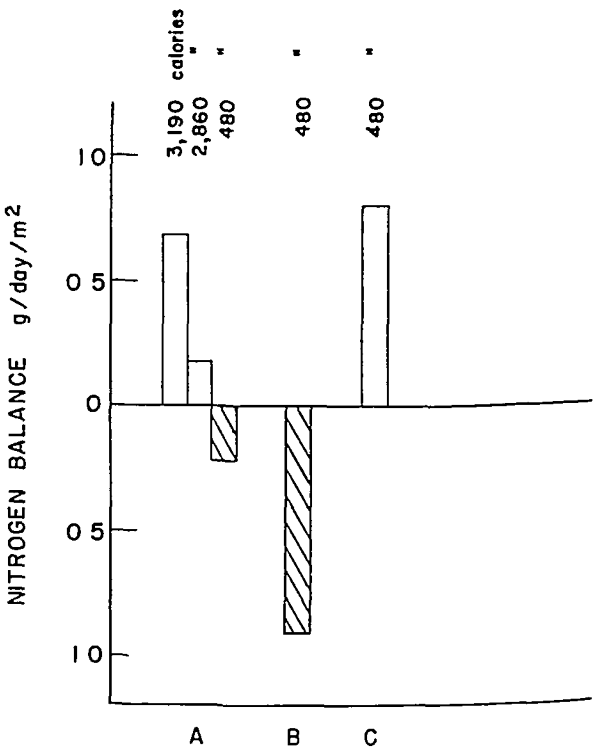

Fig. 4.—Average effect of decrease in caloric intake on nitrogen balance in three normal dogs with constant protein intake (*A*), in a dog with full protein stores (*B*), and in a dog with depleted stores (*C*). Data from Allison.[14]

Summary

This review of protein nutrition and metabolism emphasizes the dynamic state of the labile protein stores These stores are the blood and tissue proteins that increase or decrease in quantity as the dietary nitrogen is raised or lowered respectively The essentiality of certain amino acids in the diet for maximum growth of the tissues is emphasized, giving certain guide lines to help estimate the nutritive value of various dietary protein sources The concept is developed that protein stores are continually being broken down through catabolism, thereby providing energy and amino acids for the metabolic pool This pool may be particularly important to provide energy and essential amino acids during periods of malnutrition associated with sickness, stress, or low food intake

A proper balance between amino acids, furnished by the diet and the body reserves, and all other constituents in the diet would be required for maximum welfare of the body tissues Reduction in caloric intake, for example, increases the utilization of body protein reserves for energy purposes Many tissue proteins are parts of enzyme systems, with their coenzymes of inorganic ions and/or vitamin complexes Thus protein malnutrition may produce symptoms characteristic also of caloric, vitamin, or mineral deficiencies This survey of the metabolic contour map, incomplete as it is, emphasizes the role that all dietary constituents play in the development of these contours The use of amino acids and associated metabolites to alter abnormal contours toward normal is an important and obvious development in nutritional therapy

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X-Ray Accuracy —The accuracy of roentgen examinations of the chest was appraised in comparison with autopsy findings in 254 cases with gross chest disease who died within a reasonably short time after filming The objective phase of roentgen interpretation, or rate of demonstrability of intrathoracic lesions, was found to vary proportionately to the diversification of examination techniques from 63 per cent adequacy for frontal projections only through 73 per cent for projections in two or more planes to 100 per cent for fluoroscopy combined with assorted films When all films of unsatisfactory technical quality were excluded, the adequacy rates increased to 68 per cent, 87 5 per cent and 100 per cent respectively The subjective component or personal equation was then investigated and failed to improve with greater adequacy of examinations However, the most objective possible reinterpretation of the original reports disclosed that in 52 cases a correct diagnosis should have been but was not made from the available films The original rate of accuracy of interpretation was 44 per cent but became 65 per cent when correction was made for errors in initial interpretation of adequate examinations Ninety-two per cent of all examinations consisted of frontal projections only, one-fourth of which were bedside films, and the majority of patients were too ill to permit adequate roentgen studies Finally, the effect of the nature and location of 432 lesions upon their demonstrability by various types of examinations was reviewed, confirming that demonstrability varies essentially in proportion to the complexity of filming techniques — J T Littleton III, M D, and J H Feist, M D, The Accuracy of Roentgen Examinations of the Chest, *The Guthrie Clinic Bulletin*, October, 1956

THE JOURNAL
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HISTORY-MAKING EVENT IN MEDICAL COMMUNICATION

On the morning of June 5, history will be made in the field of medical communication That day, through arrangements made by Smith, Kline & French Laboratories, two of the world's great medical confraternities—the physicians of the United States and of Great Britain—will be linked for more than an hour via the new underseas cable This 'joint meeting of the American Medical Association, then in annual session in New York, and the Harvey Tercentenary Congress, convened in London on the 300th anniversary of the death of William Harvey, will hear distinguished panelists on both sides of the Atlantic exchange information on cardiac surgery

This is a notable, exciting part of the medical profession's 'person-to-person" program, urged last fall by President Eisenhower And it is fitting that Harvey is the subject of this truly international conference His work is itself an example of the internationalism of science

Circulation of the blood is so basic a part of current medical thought that sometimes we forget the importance of Harvey's contribution unless we recall medical doctrine as it stood at the time of the Renaissance This doctrine held that the liver was the center of circulation and that the heart merely contained air, or blood mixed with air, which left the right side through invisible pores in the ventricular septum Air, passing through the arteries, conveyed "animal spirits" *(animus)* to parts of the body The veins, and the veins alone contained blood The 20th century medical historian Castiglioni has stated that the correction of this concept constituted in the Renaissance "the fulcrum of all physiological knowledge, in fact, one cannot speak of true progress in physiology until the secret of circulation was revealed—a secret that had challenged attention since classical times without having resulted in much progress'

Harvey's challenge was bold and accurate In 1628, he wrote in his monumental "De motu cordis' It is absolutely necessary to conclude that the blood in the animal body is impelled in a circle, and is in a state of ceaseless motion, that this is the act or function which the heart performs by means of its pulse, and that it is the sole and only end of the motion and contraction of the heart"

In arriving at this 'absolutely necessary" conclusion, Harvey had solved various parts of the puzzle of circulation by inductive physical demonstrations But he had as a foundation the work of great names in Renaissance medicine There was Vesalius, a Fleming of German origin, who in 1543 disputed the permeability of the ventricular septum, there was the Spaniard Michael Servetus, who in 1553 stated a rough hypothesis of the pulmonary aeration of the blood, and there was the Italian Fabricus d'Aquapendente, Harvey's own teacher at Padua, who in 1603 elaborately described the valves of the heart To the spread of knowledge in the Renaissance there were no international "curtains", indeed, one Renaissance expert has written of "new reciprocal relations between members of the European group of nations' as a vital characteristic of the Renaissance itself Thus, the work of Vesalius and Servetus was freely available to Harvey—as was the opportunity to study in Italy under Fabricus, perhaps the greatest surgeon of the day

Nor does internationalism end there with the theory of circulation Harvey's book was published on the Continent—in the free city of Frankfurt The entire world of late-Renaissance science—Italy, France, Germany, Scandinavia, the Lowlands and England—entered into the controversy that followed publication of 'De motu cordis' And in the end, the work of many men of different locales—Aselli of Cremona, Jean Pecquet of Dieppe, Malpighi of Bologna—added incontrovertible facts of physiology to Harvey's own findings

It may be fair to say that the lack of nationalism in Renaissance science set the pattern of internationalism that generally characterizes modern science Just as this internationalism long predated current international "curtains,' we believe that it will long outlast them

And perhaps that last statement explains in part why the President's request for a "person-to person" program in the medical sciences is so important in terms of international understanding The many scientific journals, the many international meetings, and free correspondence by men interested in the same search—these provide already-established avenues by which any free nation can prove its goodwill So it is that on June 5, when two medical meetings will be linked, two nations will be linked Not only will science be served, but free men everywhere

TOP FOREIGN FILMS—AN A M A "FIRST"

The estimated 18,000 physicians gathering in New York City for the American Medical Association's Annual Meeting June 3-7 will have a rare opportunity to see some of the finest aspects of foreign medical practice

During the last three and a half days of the convention, 40 outstanding medical motion pictures from abroad will be shown in the Barbizon Plaza hotel This will combine postgraduate education with audio-visual delight, according to representative specialists who have previewed the films during the past five months Subjects range from blastomycosis to volvulus Film-running time varies from 10 to 53 minutes The 15 countries represented reach from Japan to Czechoslovakia, from Brazil to Australia

It will be the first time in the A. M. A.'s 106 annual meetings that American physicians will be able to watch foreign colleagues at work via an international exhibit of medical films. Almost all the scenes are in color, and all will be presented in English. Here is another example of organized medicine recognizing the impact of audiovisual techniques on mass audiences of the profession. It ranks with the previous A. M. A. convention "firsts" of live color telecasts in 1949, scientific exhibits in 1899, and amplified broadcast of human heartbeats.

The A. M. A.'s office of Motion Pictures and Medical Television (under the Council on Scientific Assembly) has arranged the program so that individual film showings will dovetail with section meetings on the same subject. For example, films on pediatrics will be screened prior to section meetings on pediatrics, movies relating to surgery will be shown in the morning, while the section meeting on surgery will take place that same afternoon.

Already, several state medical associations and specialty groups have requested reshowings for their members during the six months that the 16-mm films will remain in this country. They will be loaned on a first-come-first-served basis. The same rule will apply for hospitals, medical schools, and county societies that request the dozen or so motion pictures that the A. M. A. will include in its permanent film library.

There is such great technical interest in these presentations that scores of cinematographers, producers, and audiovisual experts from abroad and many parts of the nation are attending the A. M. A. meeting specifically to study details of photography, animation, and directing. The microscopic photography is described as "superior." One film from Japan, on the structure and function of the middle ear, is characterized by several otologists who have seen it as the finest presentation on hearing concepts ever shown.

This program, presented with the cooperation of Johnson & Johnson, also includes a symposium June 6 on problems in the international exchange of medical motion pictures. There will be *no repeat presentations* of any of the films at the meeting, and seating capacity is limited to 500 per showing. Physicians are therefore urged to plan their attendance in advance by consulting their official program as well as listings in the daily bulletin.

Medical and surgical films speak an international language. Now American doctors, gathered together, will be able for the first time to grasp this world-wide communication in its very essence.

ORGANIZED HOME CARE PROGRAMS

Recently there has been increased attention to the supplying of medical services through what are termed "home care programs." At the very beginning there must be a clear differentiation between home care as has always been provided by the private physician and "organized" home care in which there are coordinated efforts under a central administration that supplies the medical and paramedical services as part of what might be termed a 'team effort.'

The practice of medicine in the United States has always been primarily a home care program in which a physician treated illness in the home where possible, and, at the same time, called upon nursing, social, and rehabilitative services and resources, as he felt they were needed. The family physician has an additional advantage, however, in that, being a personal physician, he also knows which services will actually be utilized, and not merely accepted. For example, when he considers occupational therapy he must judge the receptiveness of the patient. Furthermore, he does not attempt to change nutritional habits without adequate preparation of the patient or those responsible for the care of the patient. In short, his knowledge of the 'whole' patient and the family environment assists him in properly organizing his own team.

Despite the advantages of treatment in a home there were still many patients who required hospitalization. As the shortage of hospital beds increased and as the cost of hospital care rose, especially for prolonged illness, many physicians began selecting certain patients who would not require all the facilities of a hospital and began amplifying their treatment in the home. Paralleling this comprehensive medical care a few organizations developed "home medical services," "hospital extended care programs," and other similarly named services. No matter what they were called, they all served to provide central administration for the coordination of various medical and related services to meet the health needs of the patient and his family.

Because of the expressed interest, not only by the medical profession but by the public as well, the Committee on Indigent Care of the A. M. A. Council on Medical Service conducted a survey designed to obtain basic information on organized home care programs in the United States. Sooner or later, local medical societies will be involved either directly or indirectly with such medical care. It is felt that an understanding of the programs now in operation will be their best guide in evaluating how they will respond if such a program is begun in their own community. The report of the survey prepared by the A. M. A. committee appears on page 298 of this issue.

What started out as primarily a chronic illness program for the indigent has developed into home-hospital services for patients with acute illness and those who are convalescing. Such organized home care programs are promoted by the sponsoring organizations as one of the best means of providing for the medical, social, and rehabilitation needs of certain patients as well as being the total medical care plan for certain groups. No attempt has been made to evaluate the programs now in operation, but it does seem that, as more and more "organized" programs begin to appear, it becomes more and more the responsibility of the practicing physician to assume his share in the planning and administration of such forms of medical care. This should allow the physician, who in the long run directly supplies the predominant service and in essence assumes the responsibility for total medical care, to match his responsibility with authority, and it will at least attempt to prevent the practice of medicine by those who have not graduated *from medical school.*

ORGANIZATION SECTION

MEDICOLEGAL SYMPOSIUMS

More than 1,000 doctors and lawyers from 44 states attended the 1957 American Medical Association medicolegal symposiums presented in Atlanta, Ga, March 15-16, Denver, March 22-23, and Philadelphia, March 29-30 These meetings marked the second time that a series of joint meetings between the medical and legal professions has been sponsored by a national organization The A M A sponsored the first such series in October, 1955, at Chicago, Omaha, and New York City

Dr David B Allman, A M A President-Elect, opened the meetings in Atlanta and Philadelphia Dr George F Lull, A M A Secretary and General Manager, opened the meeting in Denver Local medical society and bar association officials also welcomed the participants at each meeting

Both A M A speakers laid particular emphasis on the need for cooperation between the legal and medical professions, and both noted with satisfaction that the A M A and the American Bar Association national meetings last year featured speeches on medicolegal cooperation from the presidents of the A B A and A M A respectively

Dr Allman outlined four areas in which cooperation between the two professions is needed, i e, preparation and use of doctors who must testify in court, control of narcotics addition and care for addicts, enactment of the Jenkins-Keogh bill, or similar legislation to provide tax deferments for the self-employed on funds to be set aside for retirement purposes, and development of an interprofessional code of understanding for the two professions

Each symposium was devoted to three general topics These were as follows

1 Chemical Tests for Intoxication Under this section the drunken driving problem was analyzed It was generally agreed that the medical and legal professions can do much to reduce highway traffic deaths by encouraging the widespread use of chemical tests in all suspected violations involving drunken driving The importance of chemical intoxication test evidence being accepted by the courts was stressed Experts also testified that use of tests not only would convict the guilty but would absolve the innocent of guilt as well Cases were cited in which death had occurred in persons who were jailed overnight for suspected drunkenness, when actually they were suffering from a head injury or an acute diabetic condition Participants agreed that chemical tests could have prevented these tragedies

2 Trauma and Cancer The second day of each meeting began with a panel discussion on the topic of trauma and cancer The medical panelists reported that a single trauma cannot cause cancer In each case, however, there was at least one attorney who "proved legally that a single trauma may cause cancer Nearly all of the speakers agreed that court decisions are, in most cases, lagging behind accepted medical findings on the relationship of trauma to cancer They also agreed that attorneys, judges, physicians, and law makers should direct their efforts toward correcting the common practice of awarding large settlements in cases where trauma is claimed as a cause of cancer but is not scientifically proved as such

The physicians and attorneys at the three meetings who spoke on this subject were

Atlanta—William F Martin, New York City, attorney, moderator, Theodore J Curphey, M D, Hempstead, N Y, Paul J Grotzinger, M D, Philadelphia, and Hugh G Head Jr and A Walton Nall Atlanta, attorneys

Denver—Alan R Moritz, M D, Cleveland, moderator, A Reynolds Crane, M D, Philadelphia, William F Martin New York City, attorney, and Charles J Traylor, Grand Junction, Colo, attorney

Philadelphia—William F Martin, New York City, attorney moderator, I S Ravdin, M D, Philadelphia, Russell S Fisher, M D, Baltimore, Elwood S Levy, Philadelphia attorney, and Kraft W Eidman, Houston, Texas, attorney

Hugh G Head, who appeared on the Atlanta program, commented on the doctor's responsibility for testifying in court, saying, "it is the duty of the doctor basically to aid and heal the sick and it is a fair inference that it is also the duty of the doctor to be very careful about denying this sick and injured human the prosthetic appliance of the courtroom ’

3 Medical Expert Testimony It was decided in the discussion on medical expert testimony that joint responsibility on the part of the doctor and the lawyer in examining the facts, examining the patient, and preparing or ‘briefing’ testimony beforehand could prevent most cases of miscarried justice in medicolegal suits Lectures and panel discussions pointed out that the most frequent errors by attorneys in this regard are ‘over-cross-examination’ of medical expert witnesses, failure to properly prepare and qualify medical witnesses, and failure to let the doctor know what sort of questions to expect under cross-examination Doctors on the other hand, err most often by exhibiting tendencies to arrogance and hostility under cross examination, by failing to become thoroughly familiar with the medical facts in the case, and by failing to translate the medical history brought out under examination into terms that can be readily understood by the jury

Irving Goldstein of Chicago, attorney, author, educator, and editor, spoke at Atlanta and Philadelphia on Medical Expert Testimony ’ Kenneth W Robinson, veteran trial lawyer, handled this part of the program at Denver

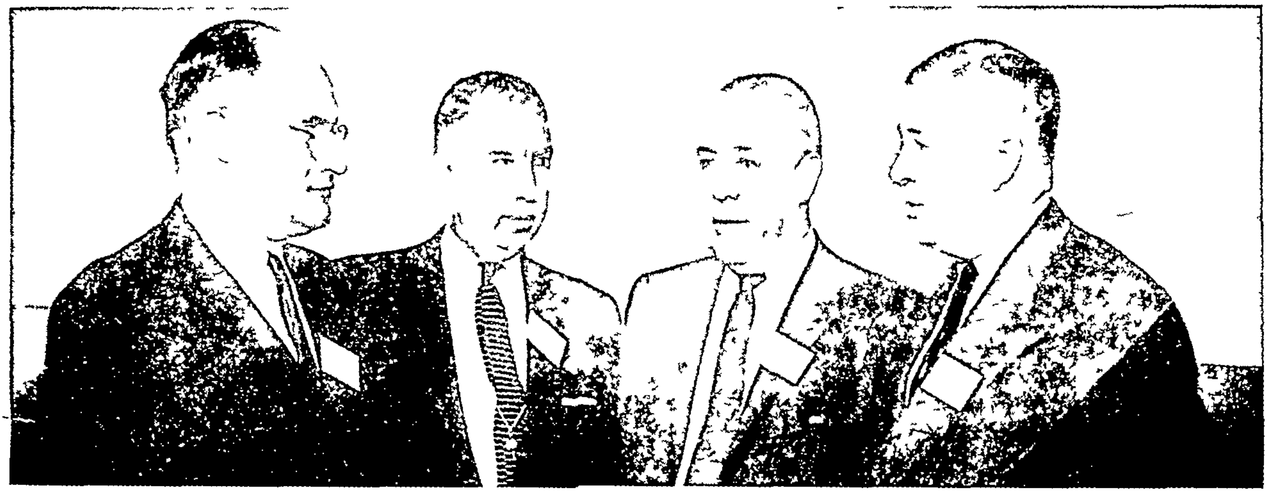
Each symposium ended with a question and answer session between the audience and a panel of medicolegal experts The participants in these panels were as follows

Atlanta—Irving Goldstein, moderator, Edgar F Fincher, M D, Emory University, Georgia, Theodore S Raiford M D, Asheville, N C, and Hamilton Lokey and Edgar A Neely Jr, Atlanta, attorneys

Denver—Kenneth M Wormwood, Denver, attorney, moderator, Charles G Freed, M D, Denver, William M Krigsten, M D, Sioux City, Iowa, Fred J O Connor, Chicago, attorney, and Godfrey Nordmark and Lawrence M Wood, Denver, attorneys

Left Irving Goldstein, Chicago attorney, spoke on "Medical Expert Testimony" at the Atlanta and Philadelphia meetings *Center,* Dr David B Allman, Atlantic City, N J, A M A President Elect, welcomed the groups in Atlanta and Philadelphia and called for a four point program of cooperation between the medical and legal professions *Right,* Dr Herman A Heise, Milwaukee, spoke on "Chemical Tests for Intoxication"

Left, C Joseph Stetler and Capt Robert F Borkenstein before the camera in the mock court trial demonstration A television news feature was sent to 211 U S stations early in March, focusing attention on the symposiums and calling attention to the value of chemical tests for intoxication *Right,* mock trial demonstration showed how to put theory into practice, particularly in the prosecution of drunken driving cases Left to right, Edwin J Holman and Mr Stetler, A M A Law Department, Captain Borkenstein, Indiana State Police, and William J McAuliffe Jr, A M A Law Department, taking test



Opening the symposium at Denver with speeches of welcome were (left to right) Joseph G Hodges, Denver, president, Colorado Bar Association, Dr George R Buck, Denver, president, Colorado State Medical Society, Thomas M Burgess, Colorado Springs, member, Board of Governors, American Bar Association, and Dr George F Lull, Chicago, Secretary General Manager, A M A

Philadelphia—Irving Goldstein, moderator, Robert M Bernstein, Philadelphia, attorney Philip H Strubing, Philadelphia, attorney, Fred J O Connor, Chicago, attorney Abraham M Ornstein, M D, Philadelphia, and Daniel F Featherston, M D Asbury Park, N J

A mock court trial prepared by C Joseph Stetler, Head of the A M A Law Department, was presented on the afternoon of the first day, after a discussion by Dr Herman A Heise of Milwaukee, who spoke at all three meetings on "Chemical Tests for Intoxication—Scientific Background and Public Acceptance" Dr Heise, chairman of the A M A medicolegal subcommittee on chemical tests for intoxication, called attention to the fact that half of the 40,000 traffic fatalities in 1956 resulted from what he termed "alcohol flavored accidents' His remarks elicited favorable editorial comment from a number of newspapers in all parts of the nation Among these was an editorial by Bert Struby, editor of the Macon *Telegraph*, a Georgia newspaper Editor Struby wrote

> His [Dr Heise s] comments turn the spotlight again on a matter which today concerns too few citizens in our state but which in the future, by its own gravity, is going to demand public consideration and action
>
> Speaking at a forum of doctors and lawyers last weekend, Dr Heise pointedly accused alcohol of being the greatest single factor in automobile accidents Yet he said, legal proof of intoxication is extremely difficult without evidence such as that obtained in chemical tests

The mock court trial served to put theory into practice by example With the inexorable drama spelled out in the step-by-step process of law in the courtroom, the fate of one Warren A Drinker, accused of driving while under the influence of alcohol, was sealed

The two-hour demonstration presented a formidable case for the use of breath tests for intoxication The testimony of a medical expert witness, the arresting officer, a police technician who tested the culprit s breath at the time of arrest, and finally the testimony of the defendant himself, all served to illustrate dramatically the points made by Dr Heise The trial proved to be an excellent example of the legal process as it must be coordinated with medical science in order to bring about just verdicts in cases where the establishment of much fact depends upon the skillful presentation of technical scientific data

The actors in the demonstration were as follows

Expert Medical Witness William W Bolton, M D, Associate Director, A M A Bureau of Exhibits, Chicago Police Technician, Capt Robert F Borkenstein, Indiana State Police, Indianapolis, Arresting Officer, Sgt G Herbert Williams, Atlanta Police Department, Georgia, Defendant, George B Larson Assistant Director, A M A Bureau of Exhibits Chicago, Prosecuting Attorney, Edwin J Holman, A M A Law Department, Chicago, Defense Attorney, William J McAuliffe Jr, A M A Law Department, Chicago, and Judge, C Joseph Stetler

The cast of the demonstration trial remained the same for the Denver and Philadelphia symposiums, with the following exceptions

Denver—Arresting Officer, Sgt Thomas O Neill, Denver Police Department, Prosecuting Attorney, Warren E Whyte, A M A Law Department, Chicago, and Defense Attorney, Frank W Barton Secretary, Council on National Defense, A M A, Chicago

Philadelphia—Expert Medical Witness, Dr Herman A Heise, Milwaukee, and Arresting Officer Capt Maurice Pliner, Philadelphia Police Department

"The Medical Witness," a 30-minute motion picture produced by the W S Merrell Company, with the cooperation of the American Medical Association and the American Bar Association, was shown at each symposium The film gives both good and bad examples of courtroom technique It also warns against many of the pitfalls encountered in medicolegal trials

The symposiums were, in effect, a short course designed to bring doctors and lawyers to a better understanding of the responsibilities and interdependence of both professions in the administration of justice C Joseph Stetler, Head of the A M A Law Department, said that another series will be presented in 1959 in the East, the Middle West, and the West

The two following items are from the March, 1957, Bulletin *of the Joint Commission on Accreditation of Hospitals (600 N Rush St, Chicago, Kenneth B Babcock, M D, director) and are reproduced below for the information they contain that will be of interest to many physicians* —Ed

STANDARDS FOR HOSPITAL ACCREDITATION

During 1956, in keeping with the policy of the Joint Commission on Accreditation of Hospitals, the Standards for Hospital Accreditation were under continued study and evaluation This is to insure a dynamic, progressive program established within a framework of solid basic principles with sufficient flexibility to encourage initiative and allow for a maximum of freedom in the implementation of the Standards Any change in the Standards made by the Board of Commissioners as a result of such study is predicated on its effectiveness to safeguard the patient and improve the quality of medical care in hospitals After such study and thoughtful deliberation, the Board of Commissioners, at its meeting in December, 1956, modified Standard II B 4b, concerning attendance at medical staff meetings The old Standard reads as follows

'Active Staff attendance shall average at each meeting at least 75 percent of the active staff who are not excused by the Executive Committee for just cause Each active staff member shall attend 75 percent of staff meetings unless excused by the Executive Committee for just cause"

The new Standard reads

"Active Staff attendance shall average at each meeting at least 50 percent of the active staff who are not excused by the Executive Committee for just cause Each active staff member shall attend 50 percent of staff meetings unless excused by the Executive Committee for just cause"

The modification of this Standard was recommended by the Committee on Standards which was charged by the Board of Commissioners to consider the "Conclusion of the Stover Report"* The Board of Commis sioners voted to accept the recommendation of the Committee on Standards for the following reasons

---

* Staff meetings required by the Joint Commission are acceptable, but the attendance requirement should be set up locally and not by the Commission

1 A well functioning medical staff with good intercommunication is essential to insure quality medical care

2 The general staff meeting is an important tool both as an administrative and educational device to keep the staff as a whole informed of hospital activities and to insure continuity of good medical practice

3 It is essential that every hospital have rules and regulations pertaining to attendance at medical staff meetings In order to make certain that these rules are adequate, the Commission should furnish a specific yardstick in the Standards

Medical staffs and administrators should realize that this new modified Standard supersedes, as of publication in this Bulletin, the former 75 percent attendance requirement The different types of staff meetings or categories to be employed as explained in prior Bulletin No 9 should be reviewed thoroughly The surveyors of the Joint Commission have been instructed to look carefully at the performance of medical staffs as regards review of work performed in the hospital

REPORT OF ACTIVITIES—1956

ACCREDITED HOSPITALS

	December 31 1956	December 31 1955
TOTAL	3770	3630

NUMBER OF SURVEYS CONDUCTED IN 1956

TOTAL	1421
U S & Possessions	1299
Canada	120
Foreign	2

RESULTS OF SURVEYS CONDUCTED IN 1956

TOTAL	1421	100%
Accredited for three years	1043	73 4%
Accredited for one year	261	18 4%
Not accredited	117	8 2%

In Review

Many letters are received each month at the offices of the Joint Commission on Accreditation of Hospitals which show considerable lack of knowledge of the basic structure and program of our organization For informational purposes a few of the facts are reiterated

1 The Joint Commission is a voluntary non-profit organization supported solely by contributions from its member organizations Their names are listed on the mast head No charge is made for a survey of any hospital

2 Before applying for a survey for accreditation a hospital must be eligible The eligibility rules are simple and as follows

a The hospital must have functioned for at least one year in its present capacity

b The hospital must have at least 25 adult beds

c The hospital must be listed by the American Hospital Association For listing, application should be made directly to the American Hospital Association Listing and accreditation are not synonomous, nor are they done simultaneously Listing comes first, then accreditation Any hospital, religious, private, non-profit, governmental or proprietary institution which fulfills the eligibility requirements may apply for accreditation

3 After a hospital applies for accreditation one month to one year may elapse before the hospital can be surveyed Schedules for surveys are made up at least two months in advance and once made usually cannot be changed Hospitals are notified usually two to three weeks in advance of the survey date Because of travel conditions, hospitals in the south generally are surveyed in winter and those in the north in summer

4 After a survey the report is mailed to the office of the Joint Commission by the surveyor or his member organization The surveyor's report contains his written recommendations for the improvement of patient care The staff of the Commission reviews the surveyor's report, any correspondence about the hospital, and the report of the previous survey to determine what action has been taken with respect to the recommendations made The recommendations of the surveyor and the staff are sent to each Commissioner, who approves or disapproves them The hospital is notified of the official action of the Commission The whole process takes from 60 to 90 days If the recommendations are disapproved by even one Commissioner the report to the hospital in question is held over until the Commissioners' meeting, when a vote is taken and a majority prevails

a Hospitals approved for three years are entitled to a Certificate The hospital will automatically be resurveyed in approximately three years

b Hospitals approved for one year are not entitled to a Certificate and must return the previous Certificate if they have one They will be automatically resurveyed in approximately one year

c Hospitals which are not accredited must re-apply for survey if and when they feel that the standards can be met

d Dry runs or trial surveys by the Commission staff cannot be made Neither the money nor personnel is available

e Only physicians are employed to survey hospitals A great deal of an accreditation survey has to do with the quality of care and only a physician can attempt to assess this care

5 The "Standards" of the Joint Commission are its basic document and every hospital medical staff, administrative staff and board of trustees should be acquainted with its contents Bulletins of the Commission are published approximately every four months and contain for the most part interpretations and explanations of the Standards, plus other statistical information

Multiple copies of all basic publications may be purchased for a nominal fee A copy of every Bulletin is sent free to the administrator and the chief of staff of each hospital It is their duty to see that essential information in the Bulletin is passed on to the medical staff and key personnel

6 The primary and controlling purpose of the Joint Commission on Accreditation of Hospitals is to insure that the best possible quality care is provided in hospitals and to encourage improvement of patient care as rapidly as knowledge and experience permits

This purpose is the natural result of the underlying philosophy of the accreditation program The philosophy that hospitals must be evaluated from the point of view of the patient In plain words 'Is this hospital giving good quality care to the extent that I am willing for a member of yours or my family to be a patient in the hospital?"

Accreditation is not compulsory either on the the part of the hospital or the accreditation body It is not licensure It is not government enactment Accreditation is a voluntary effort on the part of every hospital, its medical staff, its board of trustees and its administration to raise the quality of patient care

NATIONAL SCIENCE FAIR

The American Medical Association participated in the eighth National Science Fair in Los Angeles, May 9-11, by presenting citations to the four high school students with the best exhibits in the basic medical sciences The presentations were made at a special A M A banquet for 600 Fair participants—students, advisors, and representatives of organizations sponsoring regional science fairs—Friday evening, May 10, at the Biltmore Hotel Dr Dwight H Murray, A M A President, made the awards and invited the two 'first place" citation winners to be guests of the A M A at its Annual Meeting in New York City, June 3-7 They will display their exhibits in the Scientific Exhibit in the Coliseum

The keynote speaker at the banquet was Dr Wendell M Stanley, professor of biochemistry and director of the virus laboratory at the University of California in Berkeley John Howard, star of "Dr Hudson's Secret Journal," a weekly network television program, was master of ceremonies Entertainment was provided by several Hollywood personalities

The recipients of the A M A citations were selected by a special committee from the Association Committee chairman was Dr Alphonse McMahon, St Louis, Chairman of the A M A Council on Scientific Assembly, and members of the committee were Drs Samuel P Newman, Denver, Stanley P Reimann, Philadelphia, Henry Viets, Brookline, Mass, and Thomas G Hull, Chicago, all members of the Council, and Dr Donald A Charnock, president of the California Medical Association, and Dr J Norman O Neill, president of the Los Angeles County Medical Association

The National Science Fair is the culmination of local and regional science fairs in which finalists from all over the United States compete for national honors It is sponsored by Science Clubs of America to stimulate interest among high school students in the pursuit of science as a career The A M A House of Delegates last June resolved to "bring the whole of organized medicine into active participation in this worthwhile and constructive program to encourage the youth of our nation to take a serious interest in the field of science" During the past two years, a great number of county and state medical societies and their woman's auxiliaries have assisted in the development and promotion of community high school science fairs

A M A SPONSORS MEDICAL CIVIL DEFENSE CONFERENCE

The A M A Council on National Defense has completed program arrangements for its Fifth Annual National Medical Civil Defense Conference, to be held Saturday, June 1, in the Sert Room of the Waldorf-Astoria, New York City The conference is to be devoted to the medical aspects of the hazards and effects of radiation and radioactive fall-out

This is the second such conference held on the topic of radiation hazards, according to Mr Frank W Barton, Council Secretary Several years ago, the A M A Board of Trustees directed the Council to regularly inform physicians about the radiation and radioactive fall-out hazards The first conference devoted to this subject was held in June, 1955, at Atlantic City At hearings conducted by a subcommittee of the House Committee on Government Operations on the subject of civil defense for national survival, Mr Barton said that witnesses of the Naval Radiological Defense Laboratory testified they are convinced, on the basis of their studies, that radioactive fall-out must be considered "the major antipersonnel weapon"

Physicians wishing to attend the conference should make advance registration for the meeting and luncheon by promptly writing to the Council on National Defense, American Medical Association, 535 N Dearborn St, Chicago 10

FIFTH ANNUAL NATIONAL MEDICAL CIVIL DEFENSE CONFERENCE

JUNE 1, 1957—NEW YORK, NEW YORK
SERT ROOM—WALDORF-ASTORIA

Sponsored by

Council on National Defense
American Medical Association

PROGRAM COMMITTEE

Carroll P Hungate, M D, Chairman
Cortez F Enloe Jr, M D
Harold C Lueth, M D

9 00- 9 05	**Call to Order and Introductory Remarks**	Dr Hungate
9 05- 9 15	**Welcome Address in Behalf of A M A**	Dr Allman
9 15- 9 30	**Federal Civil Defense Affairs**	(Administrator FCDA)
9 30-10 00	**Civil Defense—A Program of Federal Responsibility**	Mr Holifield

10 00 12 15	Meeting Radiation Hazards—FCDA Programs and Plans		
	10 00 10 30	Radiological Briefing	Mr Greene
	10 30-11 00	Shelter Briefing	Mr Taylor
11 00-11 15	Break Period		
	11 15 12 15	Medical Care	Dr Van Sandt
12 30 2 00	Luncheon—Empire Room		
2 00- 3 30	Effects of Radiation		
	2 00 2 30	Biological Changes—Total Body Exposure	Dr Cronkite
	2 00- 2 30	Utilization of Nagasaki and Hiroshima Casualty Studies	Mr Corsbie
	3 00 3 30	Animals, Animal Products, and Crops	Dr Comar
3 30 4 30	Medical Management—Radiation Casualties		
	3 30 4 00	Military Concepts	General Cooney
	4 00- 4 30	Civilian Concepts	Dr Howland
4 30- 5 00	FCDA Film 'Treatment of Nerve Gas Casualties		Colonel Stewart
5 00 5 15	Summary and Roundup		Dr Enloe

The Council has arranged for the FCDA to display a radiologic exhibit which will be monitored by Mr Fred Oleson, Radiological Defense Officer, Region I, Federal Civil Defense Administration, Harvard, Massachusetts

Participants

David B Allman, M D, President-Elect, American Medical Association, Atlantic City, N J

James P Cooney, Major General, M C, U S A, Deputy Surgeon General, Department of the Army, Washington, D C

Robert L Corsbie Division of Biology and Medicine, Atomic Energy Commission Washington, D C

Cyril Comar, Ph D, Chief, Biomedical Research, Oak Ridge Institute for Nuclear Studies, Oak Ridge, Tenn

Eugene P Cronkite, M D, Head, Division of Experimental Pathology, Medical Department, Brookhaven National Laboratory, Upton, Long Island, N Y

Cortez F Enloe Jr, M D Member, Committee on Civil Defense Council on National Defense American Medical Association, New York

Jack C Greene Director Radiological Defense Division Health Office, Federal Civil Defense Administration Battle Creek Mich

Honorable Chet Holifield, U S Congressman, 19th District or California, Chairman, Sub committee on Military Operations Committee on Government Operations Washington D C

Joseph W Howland, M D, Chief, Medical Division Atomic Energy Commission Project, University of Rochester, Rochester N Y

Carroll P Hungate, M D, Member, Committee on Civil Defense and Council on National Defense American Medical Association, Kansas City, Mo

Fred Oleson, Radiological Defense Officer, Region I, Federal Civil Defense Administration, Harvard, Massachusetts

Francis B Stewart, Colonel, U S A R, Consultant Chemical and Biological Warfare Defense, Health Office Federal Civil Defense Administration, Battle Creek, Mich

Benjamin C Taylor, Director, Engineering Office, Federal Civil Defense Administration, Battle Creek Mich

M M Van Sandt M D Director, Medical Care Division Health Office, Federal Civil Defense Administration, Battle Creek Mich

INTERNATIONAL ASPECTS OF NEW YORK MEETING

At every Annual Meeting of the American Medical Association there are several hundred physicians from other countries in attendance Never before, however, have so many foreign guests been on the program as there will be in New York this year More than a score of countries will be represented A Trans-Atlantic Medical Conference will be presented for the first time, with a two way telephone connection between London and New York The occasion is the Harvey Tercentenary Congress Sir Clement Price Thomas will head a distinguished panel in the Great Hall at the Royal College of Surgeons, while Dr Michael E DeBakey will be in charge of a similar group in Carnegie Hall, New York Audience participation at both ends will be encouraged The program is presented with the cooperation of Smith, Kline & French Laboratories, Philadelphia

Sir Clement Price Thomas moderator, in London for the Trans-Atlantic Medical Conference

Another first' at the New York meeting will be the International Medical Film Exhibition with four full days of outstanding motion pictures produced in other countries Never before have so many excellent films representing medical progress been gathered together Many of the authors of the films will be present to discuss their work All discussions will be in English The program is presented with the cooperation of Johnson & Johnson, New Brunswick, N J Other leading physicians from abroad will lecture before the sections or present their work in the Scientific Exhibit In addition, more than 2,000 physicians and scientists from the United States will participate in the program, to make the New York meeting an outstanding contribution to graduate medical education

COUNCIL ON MEDICAL SERVICE

ORGANIZED "HOME CARE PROGRAMS" IN THE UNITED STATES

A REPORT BY THE COMMITTEE ON INDIGENT CARE

The concept of care in the home is not a new one Home care has always been an integral part of the practice of medicine in this country, a method whereby the sick person could be attended and relieved of his illness without separation from his family environment

More recently, however, increased attention has been focused on what are being termed "home care programs," in which selected patients who do not require all the treatment facilities of a hospital, but who would otherwise have to be hospitalized, are provided with a range of individualized medical, nursing, social, and rehabilitative services in their own homes, coordinated through one central agency

There has been growing interest in these programs, not just as a substitute for hospital care but as that part of a total medical care plan which can best meet the needs of certain patients or of a given patient in certain phases of his illness It is in view of this increased interest that the Committee on Indigent Care of the Council on Medical Service conducted a survey designed to obtain basic information on the origin and purposes, organization, administrative mechanics, and the advantages and problems encountered in the operation of such home care programs currently under way in the United States

The findings of this survey are reviewed here No effort has been made to evaluate the home care programs now in operation, nor is this report to be considered as either an approval or a disapproval of such programs However, it is believed that the data included here will be helpful to those medical societies concerned with this type of medical care program

The Survey

The Committee's first step was to arrive at a working definition of an organized home care program, as contrasted to those instances in which a patient receives, in his home, the services of a physician who may call individually upon a nurse, a social worker, a therapist, or a homemaker to assist him Background material for this purpose was drawn from the files of the Commission on Chronic Illness, which had compiled many data on the subject, from a survey of 11 home care programs conducted in 1952 by the Public Health Service of the U S Department of Health, Education and Welfare in cooperation with the Commission on Chronic Illness,[1] and from other material in the files of the Committee on Indigent Care

For the purposes of the survey, an organized home care program was defined as "one in which selected patients while homebound are provided with a full range of services which are arranged for and coordinated through one administrative agency or institution, one in which home care, as part of a total medical care plan, meets patients needs during a specific phase, or phases of illness "[2]

A home care program, as such, was expected to include at least the minimum of medical and nursing care, social services, and essential drugs and supplies It was expected that many of the programs surveyed would report additional services, such as physical or occupational therapy, homemaking, health education, and nutritionist services The essential characteristics of an organized home care program were considered to be (1) centralization of responsibility for administration, (2) coordination of the various services and resources made available to the patient, and (3) the development and use of the medical care team or the opportunity for various disciplines to deal jointly with the health needs of the patient and his family and to develop definitive planning for the patient In addition, the program was required to be served by one or more hospitals, with adequate facilities and equipment for extending services into the home[3]

On June 29, 1956, a seven-page questionnaire was mailed to all organizations which had been noted in available literature as having this type of program These organizations were queried as to the origin, purpose, administration, patients served (by types of illness, financial status, and referral sources), number and type of services offered to the patient at home, personnel and administrative mechanics of the program, sources of financing, and advantages and problems encountered in the operation of the program On Aug 13, another copy of the questionnaire was mailed with a follow-up letter to those organizations which had not replied Cut-off date on returns was Sept 30, 1956

From a total of 69 questionnaires mailed, 51 were returned The questionnaire returned by the New York City Department of Hospitals covered the operation of its home care program in 14 municipal hospitals which had been queried individually in the survey Thus 65 of the 69 organizations queried were accounted for in the returns as follows 24 respondees indicated no home care program or that their program had been discontinued, and 27 organizations reported a home care program currently in operation Of these 27 replies, 5 were deleted from the study 3 in which medical care and medicaments only were provided, one in which patients were placed in nursing homes rather than their own homes, and one in which insufficient data were given The remaining 22 programs, in addition to 9 others on which data had been ob

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Members of the Committee on Indigent Care are Drs John F Burton, Chairman Oklahoma City, A J Bowles, Seattle E P Coleman, Canton, Ill, Wesley W Hall, Reno, Nev I Jay Brightman Albany, N Y, E A Ockuly, Toledo, Ohio, Dean W Roberts Chicago, and Mr R M Hilliard, Consultant Chicago tained for 1951-1952,[1] or a total of 31, are the subject of this report, and are hereafter referred to as the programs (table 1)

Origin and Purposes

At the time of the survey, five programs were operating on a pilot or demonstration basis that is, to demonstrate the practicality of such a program and the degree to which it might meet community needs Three of these programs had been in operation less than a year, one for 14 months, and one for 21 months Three programs were in the process of transition from a demonstration to a continuing basis one of these had been operating for a year, one for three years, and one for four years

One organization, the Boston Dispensary of the New England Medical Center has been providing home care services since 1796 Another organization, the Massachusetts Memorial Hospitals, has been operating a home medical service since 1875 The University of Vermont has operated a home care program since 1925 and the Chicago Department of Welfare has been providing home medical services as part of its over-all assistance program since 1933 Of the remaining 19 programs, one had been in operation for over 15 years, one for over 10 years, 9 for over 5 years, 7 for over 2 years, and one for slightly less than 2 years

There was some variation in the reported objectives and purposes of the various programs, but, with a few exceptions, the objectives seemed to revolve around

TABLE 1—*Home Care Programs in the United States*

	Program*	Address	Date Established	Services Given in the Home‡
California	(1) Alameda County Tuberculosis Home Care Program†	Fairmont Hospital of Alameda County San Leandro	July 1949	abc ijkl
	(2) San Francisco Home Care Program	Mt Zion Hospital 1600 Divisadero San Francisco	Jan 1956	abcdefghijkl
Colorado	(3) General Medical Clinic	Denver General Hospital W Sixth Ave and Cherokee St Denver 4	June 1948	abc gh jkl
Connecticut	(4) Greater Hartford Home Care Program	Greater Hartford Community Council Hartford	June 1950	abcdefghi kl
Washington D C	(5) D C Department of Public Health HCP	Gallinger Municipal Hospital Washington	April 1950	abc ijkl
	(6) Georgetown University Medical Center Home Care Service for Cancer Patients	Georgetown Univ Hospital 38th and Reservoir Road N W Washington	March 1950	abcde ghijkl
Illinois	(7) Mt Sinai Home Medical Care Program	Mount Sinai Hospital 2750 W 15th Pl Chicago	Dec 1952	abcd ghijkl
	(8) Mercy Clinics Home Medical Care Program	Mercy Clinic 2526 S Calumet Ave Chicago 16	March 1952	abcde ghijkl
	(9) Home Medical Service of Michael Reese Hospital	Mandel Clinic Michael Reese Hospital E 29th and S Ellis Chicago	1949	abcde ghijkl
	(10) Chicago Dept of Welfare†	Chicago Department of Welfare Chicago	1933	abcd ghijkl
	(11) Peoria Home Care Plan of the V N A	Visiting Nurse Association 823 Main St Peoria	Aug 1955	abcdefghi kl
Massachusetts	(12) Boston Dispensary Home Medical Service	Tufts University School of Medicine 25 Bennet St Boston	1796	abcd ghijkl
	(13) Massachusetts Memorial Hospital Home Medical Service†	Boston University School of Medicine Boston	1875	abcd ghijkl
	(14) Department of Home Care Beth Israel Hospital	Beth Israel Hospital 330 Brookline Ave Boston	Sept 1954	abcde ghijkl
Michigan	(15) Home Care Demonstration of Detroit	Visiting Nurse Association 51 W Warren Ave Detroit	July 1955	abcdefghijkl
Minnesota	(16) St Mary's Home Nursing Service	St Mary's Hospital 1216 S W Second Rochester	Sept 1943	abc ghijkl
Missouri	(17) Home Care Dept Jewish Hospital of St Louis	Jewish Hospital of St Louis 216 S Kingshighway St Louis 10	June 1953	abcde hijkl
New Jersey	(18) Mountainside Hospital Home Care Program	Mountainside Hospital Montclair	Jan 1954	abcdefghijkl
New York	(19) N Y C Department of Hospitals Home Care Program	N Y C Department of Hospitals 125 Worth St New York 13	Nov 1948	abcdefghijkl
	(Bellevue)			
	(City)			
	(Coney Island)			
	(Cumberland)			
	(Fordham)			
	(Goldwater)			
	(Gouverneur)			
	(Greenpoint)			
	(Harlem)			
	(Lincoln)			
	(Kings County)			
	(Metropolitan)			
	(Morrisania)			
	(Queens General)			
	(Triboro)			
	(20) Montefiore Hospital Home Care Program†	Montefiore Hospital Bronx	1947	abcde ghijkl
	(21) The Home Care Program for Cancer Patients	Bronx Hospital Fulton Avenue at 169th Street Bronx	Jan 1954	abcd fghijkl
	(22) Extra Mural Care Program of the Home for Aged and Infirm Hebrews New York	Home for Aged and Infirm Hebrews 121 W 105th St New York 25	April 1918	abc e ghijkl
	(23) Genesee County Health Department HCP	Genesee County Health Dept Batavia	1953	abcd g ijkl
Ohio	(24) Home Medical Service	Jewish Hospital Burnet Avenue Cincinnati	May 1950	abcd ghijk
	(25) The Benjamin Rose Institute†	Benjamin Rose Institute Cleveland	1910	abcde hijkl
Pennsylvania	(26) Philadelphia Home Care Program†	Visiting Nurse Society of Philadelphia Philadelphia	April 1949	abcdefghijkl
	(27) Montefiore Hospital Home Care Program	Montefiore Hospital Pittsburgh	Aug 1952	abcdefghijkl
	(28) The Home Care Program of the Albert Einstein Medical Center Lucien Moss Home	Albert Einstein Medical Center York and Tabor road Philadelphia 41	June 1955	abcdefghijkl
Vermont	(29) University of Vermont Home Care Program†	University of Vermont Burlington	1925	abcdefghijkl
Virginia	(30) Richmond Home Medical Care Program†	Richmond Department of Public Health Richmond	July 1949	abcd ghijkl
Washington	(31) King County Hospital Extension Service†	King County Hospital Seattle	July 1952	abcdefg ij l

* The figures in parentheses will be used to identify individual plans in subsequent tables and will be referred to as program numbers

† Data in report obtained for year 1951 1952

‡ a medical (visiting physician and/or consultation) b nursing c social service d physical therapy e occupational therapy f speech therapy g health education h housekeeping service i hospital equipment and supplies j medicaments and medical supplies k orthopedic appliances and l transportation

the concept of home care as the most satisfactory means of meeting the total care needs of certain patients or of a patient during certain phases of his illness In the different programs this concept was extended to (1) patients convalescing from acute illness or acute exacerbation of chronic illness, (2) patients too sick or disabled to come to an outpatient clinic but not sufficiently sick or disabled to be in a hospital, (3) chronically ill and/or the indigent who did not require hospital care, (4) patients who were occupying hospital beds solely because a more suitable place for care was lacking, and (5) patients whose psychological and emotional needs would be more readily met, with recovery made more quickly, if their family environment could be maintained

Only one of the programs was established primarily as a teaching experience for medical and other student personnel, but eight of the sponsoring organizations reported this activity as one of the purposes or part of the current operation of the program Without exception, the organizations including professional or student education in their program cited the excellence of home care as a teaching experience in the family setting

Some of the programs were established primarily to offset a shortage of hospital beds, as an alternative to the high cost of hospital care for the indigent and medically indigent, and for other specific reasons However, there was a growing acceptance throughout the survey returns of home care not just as a way to save money or as a substitute for hospital care or as a new way of training professional personnel but as the best means of providing for medical, social, and rehabilitative needs of certain patients or of an individual patient during certain phases of his illness, and as an important part of a total medical care plan for certain groups

In general, then, the somewhat overlapping objectives, cited by the founding organizations, in establishing a home care program were (1) to provide the indigent and medically indigent with a quality of care and a range of services not normally available to this group, and at less cost, (2) to shorten the length of stay of hospital patients and reduce the readmission of discharged patients by providing better follow-up care at home, (3) to bridge the gap in medical care for those patients too ill to visit an outpatient clinic but who do not need hospital care, (4) to meet the needs of a growing number of chronically ill and/or aged patients who do not require institutional care but are occupying institutional beds because a more suitable place for care is lacking, (5) to speed the recovery of those patients to whom the family environment would have a therapeutic effect, (6) to offer the homebound patient a coordinated spectrum of medical, social, and rehabilitative services individualized to his particular needs, (7) to afford medical, nursing, and other professional and student personnel with a teaching experience in environmental medicine, and (8) to provide the private family physician with a single source from which he can obtain a comprehensive array of nursing, social, and rehabilitative services for his patient

In all of the programs studied, including those on a demonstration basis, the sponsoring organizations felt that the original purposes of the program had been or were in the process of being fulfilled

Administration and Organization

In one program operating on a pilot basis at th time of the survery, the administrative and coordinative duties were carried on by an independent committee which was created specifically for that purpose and which did not itself provide any direct service to patients In this program, administrative responsibility was delegated to an executive committee composed of representatives from the county medica society and six other local health, welfare, and servic organizations This committee worked with a medica advisory board consisting of representatives from si medical specialties in determining medical policies

In all of the remaining programs the administrativ agency participated to some extent in direct services t patients This participation varied from a hospita based program in which the administrative agenc provided 11 of 13 different home services, to a progra administered by a private social agency which provid ed only social casework services and arranged for 1 other patient services through existing communit facilities Thirteen of the remaining 30 programs wer administered by general hospitals or by department of general hospitals One of these was established as separate entity but was based at a general hospita insofar as the director of the hospital was also th director of the home care program and the hospit provided some of the patient services

One program was administered jointly by a genera hospital and a chronic disease unit Four were administered jointly by a medical school and a general hospital, three by chronic disease hospitals, and one b a university medical school Three programs were administered by visiting nurse associations In two o these, administrative and coordinating responsibilitie were delegated to the director of the visiting nurs association, who set up over-all program policie under the guidance of a steering committee and wit the help of a medical coordinator In the third program, administrative responsibility was vested in public health nurse coordinator who worked full tim on the program under a board of directors and wit the guidance of a medical advisory committee and professional advisory committee in setting progra policies

Three programs were administered by health departments one by a public health department in clos affiliation with a municipal hospital, one by a cit health department in cooperation with a state medica college, and one by a county health department as part of its over-all health program

In two other organizations also, home services wer given only as a part of an over-all health progra One of these programs was administered by a cit welfare department as part of its over-all general assistance program to city indigents The other was carried on by a private social agency as one facet of it over-all health assistance program for needy olde people Table 2 gives a brief description of the administrative organization in all programs

TABLE 2—*Administrative Agency—All Programs*

(1) Administered by the Alameda County (Calif) Department of Institutions—based at the Fairmont Hospital of Alameda County a chronic disease hospital

(2) Established as a separate entity but based at the Mt Zion Hospital a voluntary nonprofit general hospital insofar as the director of the program is also director of the hospital and some of the patient services emanate from the hospital Program maintains a close though informal working relationship with Chronic Illness Service Center and other service groups in San Francisco

(3) Administered jointly by the University of Colorado Medical School and the Denver Department of Health and Hospitals Based at the General Medical Clinic of Denver General Hospital Home care services provided as part of over all educational service program to Denver indigents n hospital home or outpatient clinic

(4) Established as a separate entity and administered by an executive committee composed of a physician-chairman who is medical administrator of the program and representatives from the Hartford County Medical Association City Health Department Visiting Nurse Association Hartford Rehabilitation Center Family Service Society Junior Chamber of Commerce and social service departments of local hospitals

(5) Administered by the Bureau of Disease Control of the D C Department of Public Health and based at the D C General Hospital

(6) Administered by the Georgetown University Hospital a church affiliated general hospital in Washington in cooperation with the Georgetown University School of Medicine

(7) Administered by and based at the Mt Sinai Hospital a voluntary nonprofit general hospital in Chicago

(8) Administered by and based at the Mercy Clinics of Mercy Hospital Chicago a church affiliated general hospital connected with the Stritch School of Medicine of Loyola University

(9) Administered by the Babette and Emmanuel Clinic of Michael Reese Hospital a voluntary nonprofit general hospital

(10) Administered by th Chicago Department of Welfare Home care services are given when needed as part of the department s over all assistance program to the indigent of the city

(11) Administered by the Visiting Nurse Association in Peoria under the guidance of a medical advisory committee and a professional advisory committee Program functions essentially as a separate entity

(12) Administered by the Boston Dispensary which with the Floating Hospital and the Tufts Medical School makes up the nucleus of the New England Medical Center which provides clinical experience to Tufts College medical students

(13) Administered jointly by the Massachusetts Memorial Hospitals a voluntary nonprofit association and the Boston University School of Medicine which is privately endowed

(14) Administered by the Beth Israel Hospital a voluntary nonprofit general hospital in Boston

(15) Administered by the Visiting Nurse Association in Detroit under the guidance of a steering committee that includes members of the Wayne County Medical Society

(16) Administered by St Mary s Hospital of Rochester a church affiliated general hospital

(17) Administered by the Jewish Hospital of St Louis a voluntary nonprofit general hospital which comprises a part of the Jewish Hospital Center in St Louis The program operates as a specific department of the hospital

(18) Administered by the Mountainside Hospital a voluntary nonprofit general hospital serving Montclair and 10 other communities in Essex County

(19) Administered by the New York City Department of Hospitals and operated in 15 city hospitals 13 general 2 chronic and one tuberculosis hospital

(20) Administered by the Montefiore Hospital a voluntary nonprofit hospital fo chronic disease

(21) Administered by the Bronx Hospital a voluntary nonprofit general hospita

(22) Administered by the Home for Aged and Infirm Hebrews a voluntary nonprofit chronic disease hospital

(23) Administered by the Genesee County Health Department as part of its over all health program and in cooperation with the Genesee Memorial Hospital

(24) Administered by the Jewish Hospital of Cincinnati a voluntary nonprofit general hospital

(25) Administered by the Benjamin Rose Institute a private social agency which was set up through a trust fund for the care of older people Home care services are given when needed as part of the Institute s total program of assistance to needy older people

(26) Administered by the Visiting Nurse Society in Philadelphia under the guidance of a steering committee composed of a part time medical consultant and representatives from civic and professional groups

(27) Administered by the Montefiore Hospital in Pittsburgh a voluntary nonprofit general hospital

(28) Administered jointly by the Albert Einstein Medical Center in Philadelphia a voluntary nonprofit general hospital and the Lucien Moss Home a nonprofit voluntary chronic disease facility which is physically contiguous with the Northern Division of the Medical Center

(29) Administered by the University of Vermont School of Medicine and jointly financed by the School and the City of Burlington

(30) Administered by the Richmond Va Department of Public Health Program operates in close cooperation with the Medical College of Virginia which provides some of the patient services and uses the program as a teaching resource

(31) Administered by the King County (Seattle) Hospital System consisting of two county hospitals University of Washington School of Medicine uses the program as a teaching resource for medical students

Private Physician Participation

In six of the programs, patients were required to have a private physician willing to assume responsibility for their care before they could be admitted to the home care program The various services and facilities in the program were then coordinated to the request of the individual physician, who decided which services his patient would receive, either alone or after consultation with the medical and professional advisors on the program If the patient had no private physician at the time of referral to the home care program, he was required to select one from among the practicing physicians in the community

Three of these private physician-based programs were on a pilot basis at the time of the survey, this included the program which was administered independently of the service-providing agencies and two of the programs administered by visiting nurse associations The fourth program was in the process of transition from a pilot to a continuing basis, and was administered jointly by a general hospital and a chronic disease unit The fifth program had been operating since 1949, and was also administered by a visiting nurse society The sixth program was administered by a county health department as part of its over-all health program

Four of these programs were restricted to patients with long-term illness, and two accepted patients with both chronic and acute diseases All provided services both to the indigent and to patients able to pay, with the latter charged according to their ability to pay

Two other programs also provided the patient with a free choice of physician, but in a slightly more restricted sense In one of these, administered by a county chronic disease hospital and serving indigent and medically indigent tuberculosis patients only, the patient selected his physician from a panel maintained by the program This physician then became responsible for the patient s total treatment and ordered such services as he thought necessary In the second program, administered by a city department of welfare as part of its over-all assistance program to the indigent, the patient selected a physician from a roster of approximately 1,000 licensed physicians who had expressed a desire to participate in the program These physicians prescribed such services as they thought necessary for their patients, in consultation with a medical advisory committee, and were paid by the program for medical services on a fee-for-service basis

In seven of the programs the patient remained under the care of his private physician if he had one, although this was not one of the requirements for eligibility If the patient had no private physician, he was treated by a physician on the home care staff or panel

In 15 of the programs patients received medical services only from physicians on the home care staff or medical students participating in the program, who prescribed additional services to the patient as needed, alone or in joint consultation with other members of the home care team Ten of these programs were hospital-based, three were administered jointly by a hospital and medical school, one by a medical school only, and two by city health departments

One other hospital-based program, which was established originally for the indigent and medically indigent, also attempted on a pilot basis to care for private patients, retaining the patient's family physician as head of the medical care team However, the project was discontinued because payments by Blue Cross and Blue Shield could not be made applicable to care in the home Table 3 shows the sources of medical services to patients for all programs

TABLE 3 —*Sources of Medical Services to Patients—All Programs*

Source of Care	Program Numbers
Home care physicians only	(1)* (2) (3) (5) (7) (8) (9) (10)* (12) (13) (14) (18) (19) (20) (24) (27) (30) (31)
Private physicians or home care physicians	(6) (16) (17) (21) (22) (25) (29)
Private physicians only	(4) (11) (15) (23) (26) (28)

* Selected by the patient from a panel or roster of physicians maintained by the home care program

Two of the programs in which the patient could receive home medical services only from physicians on the program staff reported some difficulty in interpreting the program to private physicians in the community and a reluctance on the part of these physicians to transfer responsibility for their patients care

Types of Patients

Of the 31 programs, 19 were restricted to indigent and medically indigent patients, of these, 8 served only patients with long-term illness, 11 accepted those with both acute and chronic diseases, and one accepted only tuberculosis patients

In 12 programs, home services were available to both indigent or medically indigent and paying patients, who were charged according to their ability to pay Five of these programs were restricted to persons with chronic diseases, five accepted those with both chronic and acute cases, and two were restricted to cancer patients In five of these programs, indigency was not specifically stated as a requirement for admission, but the majority of the patient case load were indigent or medically indigent, and the program was oriented primarily toward serving this group Table 4 shows the type of patients served, by financial status, for all programs

A number of programs specified exceptions within the disease categories accepted for care Most frequently mentioned was mental illness, which was excepted from eligibility in eight of the programs Active tuberculosis was not accepted in five of the programs, obstetric cases were not accepted in two programs, one program would not accept patients with diabetes, and two would not accept patients with contagious diseases Table 5 shows the general disease categories eligible for care in all programs

TABLE 4 —*Type of Patients Served, by Financial Status, for All Programs*

Type of Patients	Program Numbers
Indigent and medically indigent only	(1) (2) (3) (5) (7) (8) (9) (10) (12) (13) (14) (18) (19) (20) (24) (27) (29) (30) (31)
Indigent and paying but actual case load primarily indigent	(6) (16) (21) (25) (28)
Indigent and paying	(4) (11) (15) (17) (22) (23) (26)

The following additional criteria for patient eligibility were common to most of the programs 1 The patient's illness must be of a type medically suitable for home care, i e, the patient does not need the intensive diagnostic and treatment services of a hospital but needs medical supervision, is too ill to obtain it on an ambulatory basis, and the illness can be adequately cared for in the home without constituting a medical hazard to the rest of the family 2 The patient's home must be physically suitable for care 3 There must be a family member or other person available to care for the patient at home 4 The patient must desire to remain at home, and home environment should be psychologically suitable 5 The family must want the patient at home, and his presence must not impose undue hardship on other family members

Almost all of the programs limited their home care services to those patients living within a specified geographical area, for such reasons as staff travel time and expenses, the accessibility to the patient of the central home care agency, and the administrative jurisdiction of the sponsoring agency The distances to which home care services were extended in the various programs varied from 3 to 15 miles, and would indicate a probable practical limit of about 20 miles or an hour's travel time one way

In one program, administered by a private social agency as part of an over-all assistance program to the elderly, only men over 65 and women over 60 years of age, of Anglo-Saxon origin, were eligible for services In two programs, patients were required to be of Jewish faith

TABLE 5 —*General Disease Categories Eligible for Care—All Programs*

Categories	Program Numbers
Chronic only	(2) (5) (7) (9) (11) (14) (16) (20) ([illegible]) (24) (26) (27) (28)
Chronic and acute	(3) (4) (8) (10) (12) (13) (15) (17) (18) (19) (23) (25) (29) (30) (31)
Specific disease categories only	(1) (6) (21)

Referral Sources

Eleven hospital-based programs accepted patients primarily or solely from wards or the outpatient clinic of the hospital or from affiliated social agencies in one case One of the programs which was private physician-based accepted referrals only from physicians in the community, another accepted referrals primarily from this source

Eighteen programs accepted referrals from any agency or individual in the community In this last group, hospital wards and outpatient clinics constituted an important referral source, whether they were part of the administrative agency in hospital-based programs or under other hospitals in the community Other important referral sources included physicians, patients and families or relatives, nursing and convalescent homes, visiting nurse associations, and various social, health, and welfare agencies in the community

The number of patients receiving services during a year's time varied from 3 patients in one of the pilot programs which had been in operation for about two months at the time of the survey to 8,868 patients in the Boston Dispensary program which had been in operation since 1796 Four programs besides the Boston Dispensary had a yearly case load over 1,000

In the five programs operating on a pilot basis, the patient case loads were comparatively small, ranging from 3 to 56 Most of the remaining programs clus tered in a range of between 25 and 100 patients served per year, with a fairly even distribution between these two points

Services to Patients

In this survey, the organizations queried were not asked to describe specifically the services given to the patient in his home other than under headings such as "medical,' "nursing," and 'social" However, using descriptions of this type that were obtained in a previous detailed survey of 11 home care programs,[1] and certain other data obtained in the present survey, it may be of practical value to attempt a description of the specific procedures that such things as home medical services and nursing services might entail

On the basis of previous information, home medical services may include such procedures as taking case histories, making physical examinations and diagnoses, dispensing and administering routine medicaments given orally or parenterally, taking blood, urine, or sputum specimens for analysis, and other uncomplicated diagnostic and therapeutic procedures, including, in some cases, electrocardiography, determinations of basal metabolic rates, transfusions, and, in some cases, minor surgical procedures and specialist consultation

Nursing services may include such services ordered by the physician as dressings, injections and irrigations, assisting the physician with such therapeutic procedures as transfusions and surgical procedures, bed baths and other personal care, health instruction to the patient, and teaching other members of the family how to care for the patient

Social services may include evaluation of the patient s social eligibility for home care, interpretation of the program to patients and family members, helping the family adjust themselves to illness in the home, utilizing community resources to meet family economic needs and social problems not directly related to the illness situation, and maintaining liaison between and coordination of the various other agencies providing home care services

Physical therapy would include such services as corrective exercise, massage, short wave and ultraviolet treatments, wax therapy, instruction in crutch walking and the use of other prosthetic appliances, and chiropodic care for diabetic patients

Occupational therapy would include such activities as leather work, basket making, painting, weaving, music and the learning of specific skills and crafts, and would encompass both diversional and occupational therapy

Speech therapy would include visits as needed by a qualified speech therapist

Health education may include instruction of the family in caring for the patient, instruction of the patient in personal care, nutritional and meal planning consultation, especially for patients with diabetes, and other related services, usually carried on by a nurse, nutritionist, or social worker

Homemaker services would include the preparation of meals and menu planning, care of children in the home, marketing, and other domestic work necessary to maintain the home

Other services which may be provided in a home care program include home teaching for children on the program, medicaments and medical supplies, orthopedic appliances, psychological testing and psychiatric consultation, oxygen and blood, hospital equipment and supplies, and transportation of the patients, supplies and equipment, or the home care staff

Medical and nursing services were provided in all 31 programs, as were social services Some form of therapy was provided in 27 of the programs 11 provided all three—physical, occupational, and speech, 7 provided occupational and physical therapy, one provided physical and speech therapy, one provided occupational therapy only, and 7 provided physical therapy only

Medicaments and medical supplies were provided in all programs but two Homemaker service was provided in 28 of the programs, health education in 27 hospital equipment and supplies in 30 and orthopedic appliances in 30 of the programs

Additional services provided included teaching for home-bound children in three programs, psychological testing in one program, vocational counseling in one program, and provision for transfer of patients in terminal condition to a nursing home in one program serving cancer patients only (table 6)

Financing

The costs of providing home care were paid for through a variety of sources, which included (1) "allocations drawn from the budget of the administrative agency , (2) grants given directly to the program from voluntary or philanthropic agencies or organizations, to be used as the administrators of the program saw fit, (3) grants earmarked by the contributing organizations for specific items on the home care budget such as salaries or certain services, (4) payments to the home care programs by welfare departments and other public assistance agencies on behalf of specific patients, (5) services provided and paid for by other community agencies participating in the program, such as visiting nurse services, (6) payments from patients and families for services received, and (7) (notably in those programs administered by public agencies) tax monies allocated from the budget of the political subdivision under which the program operated

Nine programs were administered by public agencies or institutions Seven of these were supported primarily by tax funds, either drawn from the budget of the administrative agency or allocated from the total budget of the political subdivision under which the agency operated In the other two programs, approximately two-thirds of the budget was derived from tax funds, with the remainder being paid through grants from a private foundation Three of these programs also used services, facilities, space, etc, furnished from other community resources, which were not charged to the home care budget

In only one of the publicly administered programs did patients defray any of the costs of home care in the year for which data were obtained This was one of the programs in which patients remained under the care of their private physician if one was available, and patient payments consisted primarily of fees for medical services

The remaining 22 programs were administered by various private agencies or organizations In all except one of these programs, endowments and grants from voluntary and philanthropic agencies constituted an important, and in many cases the primary, source of outside funds The exception was a church-affiliated hospital which provided home care as a charity service to patients and met all costs through the hospital budget. In 11 of the privately administered programs, patients or their families made some payments for services rendered, but with one or two exceptions these payments were small, and comprised a relatively minor part of the total sources of funds Some of the programs received some payment from public welfare or assistance agencies on behalf of specific patients The amount varied from a very small portion to over approximately one-fourth of the total sources of funds in the various programs Many of the privately administered programs used services, facilities, personnel, etc, from other community resources, provided without charge to the home care budget In many cases, the monetary value of these services had not been calculated, but, in cases where value was mentioned, the amounts ranged from 5 to 12% of the total costs of home care

The total costs of the home care programs can be divided into four major categories (1) costs paid by the home care budget or administrative agency (monies used here may be allocations from the budget of the administrative agency, grants from private or philanthropic agencies, or tax funds allocated to those programs administered by public agencies), (2) costs paid by public welfare or assistance agencies on behalf of specific patients, and costs paid by public or tax-supported agencies providing services in the program, (3) costs paid by private or voluntary agencies providing services in the program, and (4) costs paid by patients

TABLE 6—*Services to Patients and Sources of Services—All Programs**

	Visiting Physicians	Consultation	Nursing	Social Service	Physical Therapy	Occupational Therapy	Speech Therapy	Health Education	Homemaking	Hospital Equipment	Medicaments and Medical Supplies	Orthopedic Appliances	Transportation of Patients	Transportation of Staff	Transportation of Supplies and Equipment
Alameda County Tuberculosis Home Care Program	O	O	O	H	O	O	O	O	O	H	H&C	H&O	H&O	NS	NS
San Francisco Home Care Program	H	H	O	H	H&O	H	C	C	H&O	H&C	H&O	H&C	H&O	H	H
University of Colorado General Medical Clinic	H	H	O	H	O	O	O	H&O	C	O	H	H	H	O	O
Greater Hartford Home Care Program	O	H&O	C	C	C	C	C	H&C	O	O	O	H&C	C	H&C	H&C
D C Department of Public Health Home Care Program	H	H	H	H	O	O	O	O	O	H	H	H	H	H	H
Georgetown University Home Care Service For Cancer Patients	H	H	H	H	C	C	O	H	H&O	H	H	H	H	H	H
Mt Sinai Hospital Home Medical Care Program	H	O	C	H	C	O	O	H	C	H	H	H	H	H	H
Mercy Clinics Home Medical Care Program	H	H	O	H	O	O	O	H	C	O	H&C	O	C	H	H
Home Medical Service of Michael Reese Hospital	H	H	O	H	C	C	O	H	C	H&C	H	H	H&O	H	O
Chicago Department of Welfare	O	C	C	H	C	O	O	C	H	C	O	C	C	NS	NS
Peoria Home Care Program of the V N A	O	O	H	O	H&C	O	O	H	O	H&C	O	C	O	H	H&O
Boston Dispensary Home Medical Service	H	H	O	H	C	O	O	H	C	H	H	H	H	H	H
Massachusetts Memorial Hospitals Home Medical Service	H	H	O	H	O	O	O	C	C	C	H&C	O	C	NS	NS
Department of Home Care Beth Israel Hospital	H	H	O	H	O	H	O	C	C	H	H	H	H	H	H
Home Care Demonstration of Detroit	O	O	H	O	H	H	H&O	H	H	H	H	C	H	H	H
St Mary s Home Nursing Service	O	O	H	O	O	O	O	C	C	H	H	H	C	H	H
Home Care Department Jewish Hospital of St Louis	H	H	O	H	H	C	O	O	H	H	H	H	H	H	H
Mountainside Hospital Extended Care Program	H	H	O	H	H	H	H	O	O	H	H	H	C	H	C
New York City Department of Hospitals Home Care Program†	H	H	O	H	C	H	NS	H	H&C	H	H	H&O	H&O	H&C	H&C
Montefiore Hospital Home Care Program (New York)	H	H	O	H	H	H	O	C	C	H&O	H	C	H	NS	NS
Bronx Hospital Home Care Program for Cancer Patients	H	H	O	H	C	O	C	C	C	H&C	H&O	O	C	O	C
Extra Mural Care Program of The Home for Aged and Infirm Hebrews New York	C	H	O	H	O	H&O	O	H&C	O	H	H&C	H&C	H	H	H
Genesee County Health Department	O	O	H	C	H	O	O	H	O	H&O	C	C	H&C	H	H
Home Medical Service Jewish Hospital of Cincinnati	H	H	O	H	C	O	O	H&O	C	H	H	H	O	H	H
The Benjamin Rose Institute	O	O	O	H	C	O	O	O	O	C	C	O	O	O	NS
Philadelphia Home Care Program	O	O	H&C	O	H	H	O	H&O	C	H&O	O	H&O	C	H	H&C
Montefiore Hospital Home Care Program (Pittsburgh)	H	H	O	H	H&O	O	NS	O	C	H	H	H&O	O	C	H&C
Home Care Program of The Albert Einstein Medical Center—Lucien Moss Home—Philadelphia	O	H	C	H	H	H	H	H	H&O	H	H	H	H	H	H
University of Vermont Home Care Program	H&O	H&C	H&O	H&C	C	C	C	H	O	C	H	O	C	O	C
Richmond Va Home Medical Care Program	H&C	H&O	C	H&C	O	O	O	O	C	C	C	C	H&C	H&O	H&C
King County (Wash) Hospital Extension Service	H	H	H&C	H	H	C	O	O	O	H	H	C	H&C	H	H

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* Code H facilities and staff of home care program or administrative agency C community resources O services not provided in program and NS source of serv'ce not specified

† Operated in 15 New York City Hospitals—Bellevue City Coney Island Cumberland Fordham Goldwater Gouverneur Greenpoint Harlem Lincoln Kings County Metropolitan Morrisania Queens General and Triboro

or families or by private insurance owned by patients Table 7 shows the sources of payment for direct services to patients, divided according to these four categories, for all programs, and also the sources of payment for salaries of personnel on the home care staff The total yearly cost of operating the program was not specified in all of the replies, but, where it was, the figures ranged from $2,700 to $95,500

There did not seem to be any direct relation between the total cost of the program and the number of patients served For instance, one program which served just over 40 patients during the year cited an approximate total cost of $3,000, while another program with this same case load spent approximately $16,700, more than five times as much However, certain data that were not obtained in the survey, such as the average number of home visits per patient, or the total number of patient visits, would probably show a more consistent relationship between these two factors, and make possible a more valid comparison of the variations in cost between the different programs

TABLE 7 —*Sources of Payment, Direct Services to Patients, and Salaries of Home Care Staff Personnel**

Programs for Which Data Are Available	Home Care Staff Salaries	Visiting Physicians	Consultation	Nursing	Social Service	Physical Therapy	Occupational Therapy	Speech Therapy	Health Education	Homemaking	Hospital Equipment	Medicaments and Medical Supplies	Orthopedic Appliances	Transportation of Patients	Transportation of Staff	Transportation of Supplies and Equipment
Alameda County Tuberculosis Home Care Program	H	H	H	C&W	H	O	O	O	O	O	H	H	O	H	NS	NS
San Francisco Home Care Program	H	H&W	H&W	H C W	H	H C W	H	H	H	H C W,P	H&O	H&O	H&W	H C W	H	H
University of Colorado General Medical Clinic	H	H	H	C	H	O	O	O	H&C	C	O	H	H	H	O	NS
Greater Hartford Home Care Program	H	P&W	P&W	H	C&W	H	H	H	H	H	C W P	W P	H&W	P	H	H&P
D C Department of Public Health Home Care Program	H	H	H	H	H	O	O	O	O	O	H	H	H	H	H	H
Georgetown University Home Care Service for Cancer Patients	H	H	H	H	H	C	C	O	H	H	H	H	H	H&O	H	H
Mt Sinai Hospital Home Medical Care Program	H	H	O	C	H	C	O	O	H	C&W	H	H	H	H	H	H
Mercy Clinics Home Medical Care Program	H&C	H&W	H&W	P&C	H	P&W	C W P	O	H	P&W	C	H&C	C&W	P&W	H	H
Home Medical Service of Michael Reese Hospital	H	H	H	C	H	C	C	O	H	C&W	H&C	H&W	H W P	H&W	H	O
Peoria Home Care Plan of the V N A	H	P&W	P&W	P C W	C&W	P&W	P&W	NS	P	P	P C W	O	P C W	P&C	H&C	H&C
Boston Dispensary Home Medical Service	H	H	H	C&P	H&W	C	O	O	H&W	C&P	H&W	H&W	H&W	P	H	H
Massachusetts Memorial Hospitals Home Medical Service	H	H&W	H&W	C	H	C	O	O	C	C	NS	H&O	NS	NS	NS	NS
Department of Home Care Beth Israel Hospital	H	H	H	H	H	H	H	O	H	H&C	H	H	H	H	H	H
Home Care Demonstration of Detroit	H	P&W	P&W	P&H	C	H	H	H	P&H	P&H	P&H	P&H	P&W	H&P	H&P	H&P
St Mary's Home Nursing Service	H	P&W	P&W	H	P&W	O	O	O	W	C	H	H	H	O	H	H
Home Care Department Jewish Hospital of St Louis	H	H	H	H	H	H	H	O	O	H	H	H	H	H	H	H
New York City Department of Hospitals Home Medical Service†	H	H	H	H	H	H	H	O	H	H&W	H	H	H&W	H	H	H
Montefiore Hospital Home Care Program (New York)	H	H	H	H	H	H	H	O	H	H	H	H	H	H	H	H
Bronx Hospital Home Care Program for Cancer Patients	H	H	H	H&C	H	C	O	H	C	C&W	H&C	H	H	H	O	H&C
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Genesee County Health Department	H	P&W	H W P	H	W	H	O	O	H	O	H&C	P&W	C	H&C	H&C	H&C
Home Medical Service Jewish Hospital of Cincinnati	H	H&P	H	P&C	H	C&P	O	O	O P H	W P C	H	C W H P	W H	O	C&P	C&P
Philadelphia Home Care Program	H	P W H	P W H	P W H	P&C	O P H	P C H	P&H	H C P W	P O H	W H P O	W O H P	C P W H	H C,P	H	H&C
Montefiore Hospital Home Care Program (Pittsburgh)	H	H	H	H	H	H&C	C	NS	H	H	H	H	C	H	H&C	H&P
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University of Vermont Home Care Program	H	H	H	H&C	H C W	C	C	C	H	C	C&W	H W C	C	W&C	O	H&C
Richmond Va Home Medical Care Program	H	H	H&W	H	H	H&W	O	O	H	H	H&O	H	H&W	H&W	H	H
King County (Wash) Hospital Extension Service	H	H	H	H	H	H	O	O	O	O	H	H	W&P	W&H	H	H

* Code H costs paid by home care budget or administrative agency C costs paid by private or voluntary agencies providing patient services in the program W costs paid by public welfare or assistance agencies on behalf of specific patients or by public or tax supported agencies providing patient services in the program P costs paid by patient family or privately owned health insurance O services not provided in program and NS source of payment not specified

† Operated in 10 New York City hospitals

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3 Summary The National Conference, Care of Long-term Patient Report of Committee I The Patient at Home, Chron Illness Newsletter 5 3-4 (May) 1954

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San Francisco Home Care Program	H	H	O	H	H&O	H	O	O	H&O	H&O	H&O	H&O	H&O	H	H
University of Colorado General Medical Clinic	H	H	O	H	O	O	O	H&O	O	O	H	H	H	O	O
Greater Hartford Home Care Program	C	H&C	O	O	O	O	C	H&O	O	O	O	H&O	C	H&C	H&C
D C Department of Public Health Home Care Program	H	H	H	H	O	O	O	O	O	H	H	H	H	H	H
Georgetown University Home Care Service For Cancer Patients	H	H	H	H	O	O	O	H	H&O	H	H	H	H	H	H
Mt Sinai Hospital Home Medical Care Program	H	O	O	H	O	O	O	H	C	H	H	H	H	H	H
Mercy Clinics Home Medical Care Program	H	H	O	H	O	O	O	H	C	C	H&O	O	O	H	H
Home Medical Service of Michael Reese Hospital	H	H	O	H	C	O	O	H	O	H&O	H	H	H&O	H	O
Chicago Department of Welfare	O	C	C	H	O	O	O	C	H	C	O	C	C	NS	NS
Peoria Home Care Program of the V N A	O	O	H	O	H&C	O	O	H	C	H&O	O	O	O	H	H&O
Boston Dispensary Home Medical Service	H	H	O	H	C	O	O	H	O	H	H	H	H	H	H
Massachusetts Memorial Hospitals Home Medical Service	H	H	O	H	O	O	O	C	C	O	H&O	O	C	NS	NS
Department of Home Care Beth Israel Hospital	H	H	O	H	O	H	O	C	O	H	H	H	H	H	H
Home Care Demonstration of Detroit	O	C	H	O	H	H	H&O	H	H	H	H	O	H	H	H
St Mary s Home Nursing Service	O	C	H	O	O	O	O	C	C	H	H	H	O	H	H
Home Care Department Jewish Hospital of St Louis	H	H	O	H	H	C	O	O	H	H	H	H	H	H	H
Mountainside Hospital Extended Care Program	H	H	O	H	H	H	H	O	C	H	H	H	O	H	O
New York City Department of Hospitals Home Care Program†	H	H	O	H	O	H	NS	H	H&C	H	H	H&O	H&O	H&C	H&C
Montefiore Hospital Home Care Program (New York)	H	H	O	H	H	H	O	O	C	H&O	H	C	H	NS	NS
Bronx Hospital Home Care Program for Cancer Patients	H	H	O	H	O	O	O	C	O	H&C	H&C	O	O	O	O
Extra Mural Care Program of The Home for Aged and Infirm Hebrews New York	C	H	O	H	O	H&O	O	H&O	C	H	H&C	H&O	H	H	H
Genesee County Health Department	O	O	H	C	H	O	O	H	O	H&C	O	C	H&O	H	H
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University of Vermont Home Care Program	H&O	H&C	H&C	H&O	C	C	C	H	O	C	H	O	C	O	O
Richmond Va Home Medical Care Program	H&C	H&C	C	H&C	O	O	O	C	O	C	C	C	H&O	H&O	H&O
King County (Wash) Hospital Extension Service	H	H	H&O	H	H	C	O	O	O	H	H	C	H&O	H	H

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San Francisco Home Care Program	H	H&W	H&W	H C W	H	H C W	H	H	H	H C W P	H&O	H&C	H&W	H C,W	H	H
University of Colorado General Medical Clinic	H	H	H	C	H	O	O	O	H&C	C	O	H	H	H	O	NS
Greater Hartford Home Care Program	H	P&W	P&W	H	C&W	H	H	H	H	H	C W P	W P	H&W	P	H	H&P
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Massachusetts Memorial Hospitals Home Medical Service	H	H&W	H&W	C	H	C	O	O	C	C	NS	H&C	NS	NS	NS	NS
Department of Home Care Beth Israel Hospital	H	H	H	H	H	H	H	O	H	H&C	H	H	H	H	H	H
Home Care Demonstration of Detroit	H	P&W	P&W	P&H	C	H	H	H	P&H	P&H	P&H	P&H	P&W	H&P	H&P	H&P
St Mary s Home Nursing Service	H	P&W	P&W	H	P&W	O	O	O	W	C	H	H	H	C	H	H
Home Care Department Jewish Hospital of St Louis	H	H	H	H	H	H	H	O	O	H	H	H	H	H	H	H
New York City Department of Hospitals Home Medical Service†	H	H	H	H	H	H	H	O	H	H&W	H	H	H&W	H	H	H
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Extra Mural Care Program of The Home for Aged and Infirm Hebrews New York	H	P&W	H P W	H&C	H	O	H&P	O	H,C P	H C P W	H	H&W	H&W	H	H	H
Genesee County Health Department	H	P&W	H W P	H	W	H	O	O	H	O	H&C	P&W	O	H&C	H&C	H&C
Home Medical Service Jewish Hospital of Cincinnati	H	H&P	H	P&C	H	C&P	O	O	C P H	W P C	H	C W H P	W H	O	C&P	C&P
Philadelphia Home Care Program	H	P W H	P W H	P W H	P&C	C P H	P C H	P&H	H C P W	P C H	W H P C	W C H P	C P W H	H C P	H	H&C
Montefiore Hospital Home Care Program (Pittsburgh)	H	H	H	H	H	H&C	C	NS	H	H	H	H	C	H	H&C	H&P
Home Care Program of The Albert Einstein Medical Center—Lucien Moss Home Philadelphia	H	P&H	H	H	H	H	H	H	H	H&C	H	H	H	H	H	H
University of Vermont Home Care Program	H	H	H	H&C	H C W	C	C	C	H	C	C&W	H,W C	C	W&C	O	H&C
Richmond Va Home Medical Care Program	H	H	H&W	H	H	H&W	O	O	H	H	H&C	H	H&W	H&W	H	H
King County (Wash) Hospital Extension Service	H	H	H	H	H	H	O	O	O	O	H	H	W&P	W&H	H	H

* Code H costs paid by home care budget or administrative agency C costs paid by private or voluntary agencies providing patient services in the program W costs paid by public welfare or assistance agencies on behalf of specific patients or by public or tax supported agencies providing patient services in the program P costs paid by patient family or privately owned health insurance O services not provided in program and NS source of payment not specified

† Operated in 15 New York City hospitals

References

1 Study of Selected Home Care Programs, Public Health Monograph 35, United States Department of Health, Education and Welfare, Public Health Service, 1955

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MEDICINE AND THE LAW

This is the 10th in a series of articles dealing with medical professional liability An editorial (page 360) and a chronological résumé (page 364) appeared in The Journal, *Feb 2 One of the preceding articles in this series has been published each week in* The Journal *beginning Feb 9, 1957, except in the April 13, April 20, April 27, and May 4 issues* —Ed

STATE REGULATION OF PROFESSIONAL LIABILITY INSURANCE RATES

Prior to about 10 years ago, there was almost no rate regulation by state insurance supervisory authorities of medical professional liability insurance premiums In fact, this type of insurance still represents a very small percentage of the total amount of casualty insurance premiums written As a result of this absence of state regulation, each individual company was at liberty to determine its own rates However, the National Bureau of Casualty Underwriters assumed jurisdiction in rate promulgation and risk classification on behalf of member insurance companies, effective Sept 1, 1952 When companies announced that medical professional liability insurance rates were to be increased in some states, many physicians concluded that they were being taken and that the announced increases were simply the result of concerted action motivated by selfish interests on the part of the underwriters Studies have indicated that this was not a justifiable conclusion

State Control of Insurance Rates

State	Origin of Power		Exercise of power			States in Which Pending or Existing Legislation Relates to Professional Liability Insurance
	Specific Statutory Authorization	Implied Statutory Authorization	Rates Made by Department	Rates Made by Delegated Authority	Department Approves or Disapproves Rates Made by Insurer	
Alabama	x				x	x
Arizona	x				x	x
Arkansas	x	x	x		x	x
California	x	x				x
Colorado	x	x			x	x
Connecticut	x				x	
Delaware	x	x			x	x
District of Columbia	x	x			x	x
Florida	x	x			x	x
Georgia	x				x	x
Idaho						x
Illinois	x				x	
Indiana		x			x	x
Iowa	x				x	x
Kansas	x				x	
Kentucky	x				x	
Louisiana	x		x		x	x
Maine	x				x	
Maryland	x				x	x
Massachusetts	x				x	x
Michigan	x				x	x
Minnesota	x			x	x	x
Mississippi	x				x	x
Missouri	x					x
Montana						x
Nebraska	x				x	x
Nevada	x				x	x
New Hampshire	x				x	x
New Jersey	x				x	x
New Mexico	x		x		x	x
New York	x				x	x
North Carolina	x				x	x
North Dakota	x				x	x
Ohio	x				x	x
Oklahoma	x	x			x	x
Oregon	x	x		x	x	x
Pennsylvania	x	x			x	
Rhode Island	x				x	x
South Carolina	x		x		x	x
South Dakota	x	x		x	x	x
Tennessee	x	x		x	x	x
Texas					x	x
Utah	x	x			x	x
Vermont	x				x	x
Virginia	x				x	x
Washington						x
West Virginia	x		x		x	x
Wisconsin	x	x			x	x
Wyoming	x				x	x
Total	44	14	5	4	44	43

In June of 1945, the Supreme Court of the United States, for the first time, ruled insurance to be interstate commerce and subject to the federal antitrust law The following year, Congress enacted a measure (P L 15, 79th Congress) reaffirming the traditional right of regulation to the states and stipulating that the federal government would assume jurisdiction only to the extent that the business was not regulated by the state supervisory authorities In addition, P L 15 contained a moratorium allowing the states, where necessary, a period of two years in which to adopt statutes that would provide uniform elements of regulation

As part of a study of medical professional liability, the Council on Medical Service and the Law Department have surveyed the extent to which the several states fix or control insurance rates The study, which revealed the existence of regulatory laws in almost all of the states, was carried out by means of a questionnaire that was mailed to the insurance departments of the 48 states and the District of Columbia

The primary purpose of the questionnaire was to determine whether or not there were specific laws on the subject in the respective jurisdictions A secondary purpose was to learn how the states administered the statutory or implied authority of rate regulation, such as whether the insurance department, by whatever name known, actually fixed rates for all types of casualty insurance or merely exercised control over them by approving or disapproving rate schedules prepared either by the insurance companies or designated rating organizations A response was received from every state and the District of Columbia, and the results, while not unanimous, were certainly conclusive

Forty-three states and the District of Columbia indicated that their laws contain specific statutory authority to control or regulate rates for professional liability insurance (see table) Thirteen of the 43 states reported that their laws contain both specific and implied authority One additional state indicated that its laws contain only implied authority to do so

Forty-three states and the District of Columbia indicated that their insurance departments did not, themselves or through a delegated authority, fix rates The respondents stated that they did process and approve or disapprove rates filed by insurers or designated rating organizations, such as Mutual Insurance Rating Bureau, National Bureau of Casualty Underwriters, and National Insurance Rating Bureau Nine of these 43 states said that they also fix rates themselves, either by the department directly or through a delegated authority

MEDICAL NEWS

CALIFORNIA

Los Angeles Art Exhibit —The annual exhibition of the Los Angeles Physicians' Art Society will be held May 29-June 28 in the Los Angeles County Medical Association Auditorium Only paid members may participate and only two pieces may be submitted by an exhibitor All work must be in by 5 p m , May 24 A hanging charge of $2 50 will be made for each piece

Information may be obtained by telephoning Virginia Bown, Executive Secretary, at NOrmandy 3-1062

Personal —Dr Robert W Noyes, assistant professor of obstetrics and gynecology, Stanford University School of Medicine, Stanford University-San Francisco, John and Mary R Markle Scholar, will spend his sabbatical year doing research at Cambridge University, England ——Dr J Joseph Quilligan Jr , associate professor of pediatrics, College of Medical Evangelists School of Medicine, Los Angeles, recently received from the U S Army a $13,671 grant for the purpose of studying ways to improve influenza vaccine for children

DISTRICT OF COLUMBIA

Personal —Dr Mario Mollari, chairman of bacteriology and immunology, Georgetown University Medical Center, Washington, D C , has been elected vice-president of the International Society for the Study of Infectious Diseases, Parasitology, and Immunology —— Dr Daniel Leo Finucane has been appointed director of the District of Columbia Health Department, succeeding Dr Daniel L Seckinger, who retired Jan 31 Dr Finucane has been superintendent and medical director of Glenn Dale Sanatorium since 1939 —— Dr Basil Blumenthal has been appointed director of the outpatient department at Georgetown University Hospital Dr Blumenthal, clinical associate professor of medicine at the university s school of medicine, has been associated with Georgetown since 1947

Medical Art on Tour —A unique collection of medical art by Rembrandt, Daumier, Hogarth, Toulouse-Lautrec, and other masters was exhibited at the Georgetown University School of Medicine recently The collection, entitled, "Ars Medica," or the healing arts, was composed of 85 pieces of graphic art depicting the practice of medicine over the centuries Owned by the Philadelphia Museum of Art, the exhibition is being presented on a cross-country tour by Smith, Kline and French Laboratories, under whose grant the collection was assembled The scope of the show extends from medical illustrations designed for teaching purposes—such as those of Vesalius, Wechtlin, and others—to portrayals and critiques of medical procedures of the past Assembled by Carl Zigrosser, curator of prints at the Philadelphia Museum, it is being displayed in mobile units which are especially designed for purposes of the current tour

ILLINOIS

Dr Baer Honored —Dr Walter H Baer, of Peoria, was guest of honor at a testimonial dinner sponsored recently by the Peoria Mental Health Society His fellow psychiatrists, townsmen, and friends from other parts of the country, gathered to salute Dr Baer's contributions to mental health in his community, state, and nation, including his work on the Joint Commission on Mental Illness and Health The principal speaker was Dr Jack R Ewalt, director of the joint commission and, like Dr Baer, one of its founders

Chicago

Cardiac Conference —The cardiovascular committee of the Cook County Hospital announces a conference May 21, 11 a m , at the Children's Amphitheater, 700 S Wood St Dr Aldo A Luisada, director, department of cardiology, Chicago Medical School, will speak on 'Recent Advance in phonocardiography of the Normal and Abnormal Heart " Physicians are invited

Personal —The directors of the Rehabilitation Institute of Chicago have appointed Dr Bernard J Michela as assistant medical director and chief of physical medicine Since January, 1955, Dr Michela has been an instructor and consultant in physical medicine and rehabilitation at Georgetown University Hospital and St Elizabeth's Hospital, Washington, D C ——Dr Derrick T Vail, professor of ophthalmology, Northwestern University Medical School, will be the Doyne Lecturer and Medallist of the Oxford Ophthalmological Congress at Oxford, England, July 1

KANSAS

University News —Guest lecturer for the eighth annual student research day at the University of Kansas School of Medicine, Lawrence-Kansas City on May 10 was David Rittenberg, Ph D , chairman, department of biochemistry, Columbia University College of Physicians and Surgeons, New York City His subject was "The Evolutionary Development of Enzymes "

MASSACHUSETTS

Personal —Dr Henry K Beecher, Henry Isaiah Dorr professor of research anesthesiology, Harvard Medical School, Boston, was one of five scientists who were sent to Russia by the American Physiological Society During his travels he lectured before the Academy of Sciences at Leningrad, the Academy of Medical Sciences at Moscow, he also delivered two lectures at Oxford, England, and in Dublin ——A Baird Hastings, Ph D , Hamilton Kuhn Professor of Biological Chemistry, Harvard University, and head of the department of biochemistry, Harvard Medical School, Boston, has

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health Programs should be received at least three weeks before the date of meeting been named honorary professor on the faculty of medicine, Universidad Nacional Mayor de San Marcos de Lima, Peru Dr Hastings received the honor during his participation in a special convocation of the faculty of medicine marking the dedication of the new Institute of Biochemistry and Nutrition at the South American University —A $29,670 grant from the National Institutes of Health to aid in cancer study was awarded recently to Dr Shelton C Sommers, professor of pathology, Boston University School of Medicine, Boston, to be used to study further the effect of human cancer cells upon hamsters

State Society Meets in Boston —The 176th anniversary of the Massachusetts Medical Society will be celebrated at the annual meeting May 21-23 at the Hotel Statler, Boston The Shattuck Lecture, 'The Patient,' will be given by Dr Leland S McKittrick, clinical professor of surgery, Harvard Medical School The Annual Discourse, "Genes, the Heart and Destiny,' will be given by Dr Paul D White, clinical professor of medicine, Harvard Medical School, who also will be guest speaker at the annual dinner May 22 The following symposiums will be conducted by out-of-state moderators

Progress in the Treatment of Fractures with Dr Preston A Wade, professor of clinical surgery, Cornell University Medical College New York City
Recent Advances in Neurology, with Dr G Milton Shy, clinical director, National Institute of Neruological Diseases and Blindness, Bethesda, Md
Progress in Obstetrics and Gynecology, with Dr Carl T Javert, director, obstetrics and gynecology Woman s Hospital Division St Luke s Hospital, New York City

An art exhibit, an annual golf tournament, and technical exhibits are featured For information write Dr Robert W Buck, Secretary, Massachusetts Medical Society, 22 The Fenway, Boston 15

NEW YORK

Personal —Dr Norvin C Kiefer, chief medical director of The Equitable Life Assurance Society of the United States, New York City, was chosen president-elect of the National Health Council at its annual meeting in Cincinnati to succeed, in 1958, Mr Basil O Connor

Society News —Officers of the Nassau Radiological Society now include president, Dr Arthur I Frucht, Hempstead, vice-president, Dr Benjamin L Feuerstein, Bay Shore, treasurer, Dr John A Knapp, Hempstead, and secretary, Dr Jerome Zwanger, Massapequa

Surgeons Meet in Lake Placid —The International College of Surgeons will hold its New York State sectional meeting at the Whiteface Inn, Lake Placid, N Y, May 30-June 1 More than 50 surgeons will speak on the scientific program, which will be made up of panel discussions, the presentation of papers, and motion pictures of surgical procedures in color Dr James P Fleming, Rochester, N Y, is general chairman of the meeting The following papers will be presented

Psychiatry in Surgery, Lauchlen S Palmer, Brooklyn
Surgical Treatment of Uterine and Vaginal Prolapse, with film in color, Charles H Thom, Staten Island
The Acute Abdomen in Pregnancy, Arthur J Wallingford Albany
Reconstructive Surgery, Ross T McIntire, Chicago

Dr Samuel F Marshall of the Lahey Clinic, Boston, will present a 3-D surgical motion picture in sound and color on "Radical Resection for Carcinoma of the Stomach' Other films in color will be presented by Dr John E Dunphy, Boston, and Dr John G Mussio, New York For information write the International College of Surgeons, 1516 Lake Shore Drive, Chicago 10, Ill

New York City

Tuberculosis Conference —The annual conference of the New York Tuberculosis and Health Association was held May 14 at the Hotel Statler The subject of the program, "Tuberculosis and the Homeless Man,' was discussed by Dr Donald J Ottenberg, Philadelphia, Joan K Jackson, Ph D, Seattle, Dr Anthony Zappala, Washington, D C, and Dr Robert C Darling, New York City Speaker at the annual luncheon was Dr Gardner Middlebrook, director of research and laboratories, National Jewish Hospital, Denver

Organize Children's Tumor Clinic —A Children's Anemia and Tumor Clinic has been organized at the New York Medical College-Metropolitan Medical Center for the diagnosis, treatment, and special study of problems associated with the chronic hemolytic anemias, leukemia, and malignant diseases of infants and children The clinics meet on Thursday mornings at Flower and Fifth Avenue Hospitals, 1249 Fifth Ave (TRafalgar 6 5500 Ext 237) and Tuesday afternoons at Metropolitan Hospital, 2nd Ave at 97th St (ENright 9-6300)

Nine Million Dollar Medical Gift —The Institute of Physical Medicine and Rehabilitation will receive a gift of 9 million dollars from a bequest of the late Louis J Horowitz, former honorary trustee of the board According to Dr Howard A Rusk, director of the institute, the bequest will be used principally (1) to subsidize patients who cannot otherwise meet the cost of their care, (2) for research, and (3) to establish the first chair of physical medicine and rehabilitation Before his death, Mr Horowitz had contributed a total of $1,500,000 to the institute

Appoint Chairman of Microbiology Department —Alwin M Pappenheimer Jr, Ph D, has been appointed professor and chairman of the department of microbiology of New York University College of Medicine to succeed Dr Colin M MacLeod, who has become John Herr Musser Professor of research medicine and chairman of the department of research medicine at the University of Pennsylvania School of Medicine, Philadelphia Dr Pappenheimer has been on the staff of New York University College of Medicine since 1941 and previously held faculty positions with Harvard and with the University of Pennsylvania He is editor of the *Journal of Immunology* and *Bacteriological Reviews,* and a member of the Commission on Immunization of the Armed Forces Epidemiological Board

OKLAHOMA

University News —The University of Oklahoma School of Medicine, Oklahoma City, has been awarded a $184,000, five-year grant from the National Institute of Mental Health to develop a training program in medical statistics Dr Carl R Doering, professor of preventive medicine and public health, will direct the program

Oklahoma Cavalcade of Health —The Oklahoma State Medical Association will sponsor a Cavalcade of Health at the State's Semi-Centennial Exposition at the Oklahoma City fairgrounds, June 14-July 7 Theme of the exposition will be 'Atoms to Arrows, and the Oklahoma State Medical Association s 75 exhibits will illustrate advances in all areas of medical endeavor A major attraction of the 'Cavalcade of Health" will be a manikin, constructed by German scientists and made available by the Dominican Republic's Ministry of Health The manikin has plastic internal organs which illuminate while the "voice of the figure explains the function of each

SOUTH DAKOTA

University News —Second-year medical students at the University of South Dakota School of Medical Sciences, Vermillion, spend Saturday mornings at the Sioux Valley Hospital, McKennan Hospital, and the Royal C Johnson Veterans Hospital, where they examine patients under the supervision of the patients' own doctors The program gives the students their first opportunity to apply basic knowledge in the diagnosis of disease Working in groups of two or three, the students come in contact with an average of 20 doctors and an equal number of patients during each period Objective of the program is to help bridge the gap between the student's first two years in the school and work at some other medical school in the student s junior year

State Society Meets in Sioux Falls —The annual meeting of the South Dakota Medical Association will be held May 18-21 at the Shearton-Cataract Hotel, Sioux Falls Fourteen papers and two films are scheduled for the four general sessions, with a question and answer hour arranged for the fourth session on 'Problems of Peripheral-Vascular Disease' led by Dr John E Estes, consultant in internal medicine, Mayo Clinic, Rochester, Minn The banquet will be held May 20, 7 00 p m

The first annual hobby show of the association will open May 19 Association members are invited to make entries of paintings, carvings, collections, etc For information write the South Dakota State Medical Association, 300 First National Bank Building, Sioux Falls

TENNESSEE

Society News —The Tennessee Radiological Society recently elected the following officers president, Dr Walter E Scribner, Kingsport, vice-president, Dr David S Carroll, Memphis, secretary-treasurer, Dr George K Henshall Jr, Chattanooga Dr Herbert C Francis, Nashville, was nominated counselor to the American College of Radiology and Dr Walter D Hankins, Johnson City, was nominated alternate counselor

Building Program Completed —The University of Tennessee Medical Unit has completed a 5 million dollar building program The addition of a seventh and eighth floor to the Institute of Pathology Building at a cost of $600,000, will permit the expansion of research and clinical facilities for the College of Medicine's divisions of medicine and surgery The pharmacy building has been remodeled at a cost of $400,000 and a fifth floor added This building houses the Division of Pharmacology and the School of Pharmacy Space also is provided for a laboratory for the U S Public Health Service

Personal —Dr Kelly Smythe, Bemis, was recently honored by the community he has served for the past 43 years when the seniors of J B Young High School dedicated their annual publication to him —Dr Phineas J Sparer, chief of psychiatry and psychosomatics at Veterans Administration Hospital, Memphis, has joined the staff of the University of Tennessee College of Medicine, Memphis, as professor of psychiatry and of preventive medicine Dr Sparer is author of a recent book, Personality, Stress and Tuberculosis —Dr Archie R Foley, who joined the staff of the department of psychiatry, University of Tennessee College of Medicine, Memphis, in 1955, has accepted a year's appointment at the Institute of Neurology, Queen Square, University of London —Dr Ralph F Morton, instructor in medicine, University of Tennessee College of Medicine, Memphis, has been awarded the C Riley Houck Investigatorship established by the Tennessee Heart Association The award carries a stipend of $7,200 for the first year It was established in memory of the late associate professor of physiology at the medical units, who was doing research work in diseases of the heart and blood vessels when he died of a heart attack Dr Morton also has been awarded the Frank W Dugan Fellowship in Cardiology, established by the widow of the late Memphis lumberman

HAWAII

Society News —The Honolulu Pediatric Society recently elected the following officers to serve during 1957 president, Dr William A Myers, recording secretary, Dr Allan C Oglesby, and corresponding secretary-treasurer, Dr Clifford K Kobayashi, all of Honolulu

GENERAL

Obstetrics and Gynecology Certification —The American Board of Obstetrics and Gynecology announces that applications for certification, new and reopened, for the 1958 part I examinations are now being accepted Deadline date for receipt of applications is Sept 1 Current bulletins outlining present requirements may be obtained by writing to Dr Robert L Faulkner, American Board of Obstetrics and Gynecology, 2103 Adelbert Rd, Cleveland 6, Ohio

Dominican Republic Malaria Fund —A check for $100,000 was given recently to Dr Fred L Soper, director, Pan-American Sanitary Bureau, regional office of the World Health Organization, Washington, D C , by the Ambassador of the Dominican Republic to the United States, His Excellency Joaquin E Salazar This money is the first installment of a $500,000 contribution of the Dominican Government for the special fund for malaria eradication of the Pan-American Sanitary Organization It is the second contribution to the fund, the first, in the amount of $1,500,000, having been made in March by the government of the United States

Physical Medicine Prize Lecture —To stimulate interest in physical medicine and rehabilitation the American Congress of Physical Medicine and Rehabilitation will award annually a prize for an essay Among the rules which apply to the contest are Manuscripts MUST BE in the office of the American Congress of Physical Medicine and Rehabilitation, 30 N Michigan Ave , Chicago 2 not later than June 1 An original and one carbon copy of each manuscript not exceeding 3,000 words must be submitted The winner will receive $200, a gold medal, a certificate of award, and an invitation to present the contribution before the annual session of the American Congress of Physical Medicine and Rehabilitation in Los Angeles Sept 8 13

Investigative Dermatology Meeting —The 18th annual meeting of the Society for Investigative Dermatology, Inc , will be held at the Belmont Plaza, New York City, June 1-2 Among the speakers on the program are George C Wells St Thomas Hospital University of London who will present 'On the Origin of the Free Fatty Acids of Human Surface Fat,' and Drs Edwin Sidi Marc Hincky and Robert Longueville, Paris France who will present 'Cross-Sensitization Between Neomycin and Streptomycin' A cocktail party and dinner ($10 a person) will be held June 1, 7 p m Dr Harry L Arnold Jr , of Honolulu, will be the speaker of the evening For information write Dr Herman Beerman, Secretary-Treasurer 255 S 17th St , Philadelphia 3

Meeting on Air Pollution Control —The Air Pollution Control Association will celebrate its golden anniversary June 2-6 at a meeting at the Jefferson Hotel, St Louis Mo , in which celebration the American Meteorological Society the American Institute of Chemical Engineers, the American Society of Mechanical Engineers and the American Society of Heating and Air Conditioning Engineers will join in the celebration This will be the first time these five organizations will unite their efforts for a program devoted solely to air pollution and its control At this meeting each society will develop information related to its special field of technological interest The address of the executive secretary of the Air Pollution Control Association is Harry C Ballman, 4400 Fifth Ave , Pittsburgh 13, Pa

Free Cardiac Surgery Program —National Jewish Hospital at Denver in expanding its cardiovascular program will consider applications of patients suffering from cardiovascular defects amenable to surgical intervention, including mitral and aortic stenosis, congenital cardiac anomalies Definitive diagnosis is not necessary prior to admission, inasmuch as the hospital has a completely equipped cardiopulmonary physiology laboratory Patients are accepted without regard to race, religion or national origin and without charge Only those unable to pay for private care are eligible Periodic reports are made routinely to the referring physician Inquiries should be sent to Medical Director National Jewish Hospital Denver 6, Colo

Research Conference on Food and Nutrition —The 1957 Gordon Research Conference on Food and Nutrition will be held at Colby Junior College for Women, New London, N H , Aug 19-23 These conferences were established to stimulate research, and this purpose is achieved by an informal type of meeting consisting of lectures and free discussion groups The program does not aim to review known fields of nutrition and food technology but to bring experts up to date on the latest developments and to provoke suggestions for making further progress No publications are prepared as emanating from these conferences Attendance is limited to 100 Persons interested in attending may address Wilber George Parks, Ph D , Director, Department of Chemistry, University of Rhode Island, Kingston, R I

Physicians Invited to German Parley —The German Foreign Office recently invited a group of American public health workers to be guests of the German Government for a four-week tour of the Federal Republic of Germany Round-table discussions with representatives of federal ministries were scheduled so that the guests might present their own particular problems and learn how similar problems are dealt with in Germany The tour is part of an exchange program with the United States inaugurated in 1952 The group included Dr Eugene F Lutterbeck, president of the German Medical Society of Chicago, Dr Raymond Frank Barnes, American National Red Cross, St Louis, Dr Robert Dyar, California State Department of Public Health, Berkeley, Calif , Dr Henry A Holle, State Department of Health, Austin, Texas, and Miss Margaret McLaughlin, Public Health Service, Charlottesville, Va

Hospitalized Children —One out of every 14 boys and one out of every 17 girls under age 20 are hospitalized in the course of a year, the Metropolitan Life Insurance Company's statisticians report on the basis of the experience among dependent children of the company's personnel The study, concerning claims involving at least one night of hospital stay, showed that the average length of hospital stay was 5½ days Youngsters 5 through 9 years of age had the shortest stay, averaging not much over 3 days This is accounted for largely by the fact that tonsillectomies, which constituted the bulk of the cases at these ages, averaged only slightly more than one day in the hospital The 15 through 19 age group had the longest average stay—about 9 days Two-thirds of the hospitalized cases had surgery Duration of the hospital stay was much shorter for the surgery cases than for the nonsurgical, averaging less than half as long

Scholarship for Study Abroad—The Committee on Medical Education of the New York Academy of Medicine will award one scholarship grant in the amount of $4,700 for the academic year 1958-1959 to provide aid for advanced study abroad in a clinical subject in preparation for the practice of medicine or surgery Candidates must be male interns or residents in voluntary, municipal, or Veterans Administration hospitals in New York City The course of study, the auspices under which it is to be taken, and the place or places where the study is to be pursued must receive the approval of the committee, which stipulates that the study be pursued abroad, preferably in Great Britain or in continental Europe Applications must be submitted by Sept 1 Information may be obtained by writing to Dr Robert L Craig, Executive Secretary, Committee on Medical Education, New York Academy of Medicine, 2 E 103 St, New York 29

Nuclear Institute Traveling Lecture Program—The National Science Foundation recently announced a grant of $115,800 to the Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn, to carry out its expanded Traveling Science Demonstration Lecture Program for 1957-1958 Sponsored by the foundation in cooperation with the U S Atomic Energy Commission, which is contributing $38,000, the "traveling teacher" program is designed to stimulate interest in science and science-teaching careers on the part of secondary-school students Announcements about the program are being sent to 30,000 high schools throughout the United States Information concerning the program and brochures announcing the 1957-1958 activity can be obtained by writing Oak Ridge Traveling Science Demonstration Lecture Program, University Relations Division, Oak Ridge Institute of Nuclear Studies, P O Box 117, Oak Ridge, Tenn

Angiologists Meet in New York—The annual meeting of the American College of Angiology will be held at the Plaza Hotel, New York City June 1-2 A symposium on cardiac surgery will be held June 1 with Dr Frank Glenn, Lewis Atterbury Stimson Professor of Surgery, Cornell University Medical College, New York, as moderator A symposium on peripheral vascular disease will be moderated by Dr Alvin A Bakst, clinical assistant professor of surgery, State University of New York College of Medicine, Brooklyn Dr E Jefferson Browder, professor, department of neurosurgery, State University of New York College of Medicine, Brooklyn, will serve as moderator of a panel discussion on vascular disease of the brain, to be held June 2 Scientists interested in vascular medicine are invited For information write Dr Anafred N Halpern, Secretary, American College of Angiology, 15 E 62nd St, New York 21, N Y

Therapeutic Society Meets in New York—The 58th annual meeting of the American Therapeutic Society will be held May 30-June 2 at the Essex House, New York City The scientific program includes the following symposiums Newer Aspects of Therapy in Hematology, moderated by Dr Paul Reznikoff, clinical professor of medicine, Cornell University Medical College, New York City, Newer Aspects of Antibiotics, and Management of Hypertension, moderated by Dr George A Perera, associate professor of medicine, Columbia University College of Physicians and Surgeons, New York City Dr Robert W Wilkins, president-elect, American Heart Association, and professor of medicine, Boston University School of Medicine, will speak on "From Snake Root to Serotonin at the presentation of the third Oscar B Hunter Memorial Award in Therapeutics Further information may be obtained from Dr Oscar B Hunter Jr, Secretary, American Therapeutic Society 915-19th St N W, Washington 6, D C

Annual Report on Accidents—The National Safety Council announces that in 1956 accidents killed 95,000 persons in the United States, injured 9,450,000, and cost $10,800,000,000 Despite a 2% increase in accidental deaths over the 1955 figure, the population death rate went down slightly—from 56 9 to 56 8—because of a relatively greater increase in population Motor vehicle accidents remained the nation's No 1 accident killer, with a 4% increase, home accidents claimed the second largest number of lives (27,500), and accidents at work (14,300), the third Deaths from falls numbered 20,000 in 1956, from burns, 6,800, from drownings, 5,900, and from firearms, 2,150 Catastrophes in which the toll was at least 5 lives occurred less frequently in 1956 (1,300) than in 1955 (1,150) Only one catastrophe in 1956 caused more than 50 deaths—the June 30 collision of two passenger planes over the Grand Canyon in Arizona, in which 128 persons were killed In February a military plane crash in California cost 40 lives, and in July another military plane crash in New Jersey killed 46 Two other catastrophes brought death tolls of 25 and 30 persons

Society News—Officers of the **American Association of Medical Clinics** now include Dr G Gordon McHardy, Browne-McHardy Clinic, New Orleans, president, Dr George Plain, The South Bend Clinic, South Bend, Ind, vice-president, and Dr Harold D Caylor, Caylor-Nickel Clinic, Bluffton, Ind, secretary-treasurer ——At the annual meeting of the **North Pacific Society of Neurology Psychiatry** the following officers were elected president, Dr Douglas E Alcorn, Victoria, B C, president-elect, Dr John W Evans, Portland, Ore, secretary-treasurer, Dr Robert M Rankin, Seattle ——At the recent meeting of the **American Dermatological Association** the following officers were elected president, Dr Clark W Finnerud, Chicago, vice-president, Dr Hamilton Montgomery, Rochester, Minn, secretary, Dr J Lamar Callaway, Durham, N C, treasurer, Dr Carl T Nelson, New York City ——The **American Society for Artificial Internal Organs** elected the following officers at a recent Chicago meeting president, Dr Peter F Salisbury, Los Angeles, president-elect, Dr George H A Clowes Jr, Cleveland, secretary-treasurer, Dr George E Schreiner, Washington, D C and council members, Drs William J Kolff, Cleveland, Clarence Dennis, Brooklyn, Robert Bowman, Bethesda, Md

Award in Neurological Surgery—The American Academy of Neurological Surgery announces its third annual award given for the best paper submitted reporting original clinical or laboratory research pertaining to the nervous system for which the author has had the primary responsibility Eligibility is confined to doctors of medicine currently training in neurological surgery or those who have completed training since June 30, 1955, except those who have been certified by the American Board of Neurological Surgery or by the Royal College of Surgeons of Canada, subspecialty neurosurgery The recipient will present his paper at the 19th annual meeting of the American Academy of Neurological Surgery at The Cloister, Sea Island, Ga, Nov 11-13 His expenses while attending the meeting and his travel expenses to and from his home (if living outside the North American Continent, from the port of entry into the United States) will be borne by the academy, and there will be an honorarium of $100 Manuscripts should be sent to Dr Eben Alexander Jr, Secretary to the Academy, at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N C, before July 15 A resume of the candidate's postdoctoral training must accompany the paper when submitted

Meeting in New York on Sterility—The American Society for the Study of Sterility will hold its 13th annual meeting at the Waldorf-Astoria Hotel, New York City, May 31-June 2 A demonstration of methods and research in treatment of sterility in leading institutions has been arranged by Dr Alan F Guttmacher, clinical professor of obstetrics and gynecology, Columbia University College of Physicians and Surgeons, New York City, and Dr Charles M McLane, assistant professor of obstetrics and gynecology, Cornell University Medical College, New York City A special address, 'A Society Comes of Age,' will be given by Dr Wesley T Pommerenke, of Rochester, president of the society A round-table discussion, 'Endometriosis and Sterility' and a luncheon panel discussion, 'Therapeutic Irradiation,' moderated by Dr C Lee Buxton, professor of obstetrics and gynecology, Yale University School of Medicine, New Haven, Conn, are scheduled A breakfast round-table discussion will be conducted June 2 The program includes the following topics and speakers

Diagnosis and Treatment of Sterility in the Male, with Especial Reference to Sperm Motility, Robert S Hotchkiss, professor of urology New York University Postgraduate Medical School, New York City

Endometrium and Sterility, Arthur T Hertig, Shattuck Professor of Pathological Anatomy Harvard Medical School, Boston

Psychogenic Sterility Robert A Cleghorn, professor of psychiatry McGill University, and Carlo G Bos, senior staff department of psychiatry McGill University Montreal Canada

The 1957 Ayerst Lecture, 'Laboratory and Clinic in the Study of Infertility,' will be given by Dr George W Corner, Rockefeller Institute, New York City

EXAMINATIONS AND LICENSURE

American Board of Anesthesiology *Part I* Various locations, July 19 Final date for filing application was Jan 19 American Board of Anesthesiology *Oral* Washington, Oct 28-Nov 1 Sec, Dr Curtiss B Hickcox, 80 Seymour St, Hartford 15

American Board of Dermatology *Written* Several cities, June 27 *Oral* Baltimore, Oct 11-13 Final date for filing application was April 1 Sec, Dr Beatrice Maher Kesten, One Haven Ave, New York 32

American Board of Internal Medicine *Written* Oct 21 *Oral* Los Angeles, Sept 11-14 Final date for filing applications was Feb 1 Exec Sec, Dr W A Werrell, 1 West Main St, Madison 3 Wis

American Board of Neurological Surgery Examination given twice annually, in the spring and fall In order to be eligible a candidate must have his application filed at least six months before the examination time Sec, Dr Leonard T Furlow, Washington University School of Medicine, St Louis 10

American Board of Obstetrics and Gynecology Applications for certification, new and reopened, for the 1958 Part I examinations are now being accepted Deadline for receipt of applications is September 1 Sec, Dr Robert L Faulkner, 2105 Adelbert Road, Cleveland 6 Ohio

American Board of Ophthalmology *Oral* Chicago, Oct 7-11 *Written* January 1958 *Final date for filing application* is July 1 Sec, Dr Merrill J King, Box 236, Cape Cottage Branch Portland 9, Maine

American Board of Orthopaedic Surgery *Part II* New York City, Jan 29-31, 1958 Final date for filing application is August 15 Sec, Dr Sam W Banks, 116 South Michigan Avenue, Chicago 3

American Board of Otolaryngology Chicago, Oct 7-11 Final date for filing application was in April Sec, Dr Dean M Lierle, University Hospitals, Iowa City

American Board of Pathology *Oral and Written Pathologic Anatomy and Clinical Pathology* New Orleans, Sept 26-28 Final date for filing application is August 15 Sec, Dr Edward B Smith Indiana University Medical Center, Indianapolis 7

American Board of Pediatrics *Oral* San Francisco, June 21-23 Sec Dr John McK Mitchell, 6 Cushman Road, Rosemont, Pa

American Board of Physical Medicine and Rehabilitation *Parts I and II* New York City, June 8-9 Final date for filing application was March 1 Sec, Dr Earl C Elkins, 200 First St, S W, Rochester, Minn

American Board of Proctology *Oral and Written Parts I and II* September Sec, Dr Stuart T Ross, 520 Franklin Ave, Garden City N Y

American Board of Psychiatry and Neurology New York, Dec 16-17 San Francisco, March 17-18 Sec, Dr David A Boyd Jr 102 110 Second Ave, S W Rochester, Minn

American Board of Radiology Washington, Sept 23-28 Final date for filing application is June 1 Within the near future a special examination for certification in Nuclear Medicine will be offered to diplomates in Radiology and Therapeutic Radiology Sec, Kahler Hotel Bldg Rochester, Minn

American Board of Surgery *Part II* New York, June 10-11 Sec, Dr John B Flick 225 S 15th St, Philadelphia 2

American Board of Urology *Written examination* Various cities throughout the country *Pathology and Oral Clinical* February 1958 Location not decided Exec Secretary, Mrs Ruby L Griggs, 30 Westwood Road, Minneapolis 16

Board of Thoracic Surgery *Written* Various centers throughout the country, September 1957, and the closing date for registration is July 1, 1957 Sec, Dr William H Tuttle, 1151 Taylor Ave, Detroit 2

DEATHS

Mahoney, John Friend, medical director, U S Public Health Service, retired, New York City, born in Fond du Lac, Wis , Aug 1, 1889, Marquette University School of Medicine, Milwaukee, 1914, specialist certified by the American Board of Preventive Medicine, commissioned a medical officer in the Public Health Service in 1917, later spent four years in Haiti, Ireland, England, and Germany, where he did research on venereal diseases, then became director of the venereal disease research laboratory of the U S Marine Hospital, now the U S Public Health Service Hospital, on Staten Island, a position he held for 20 years, formerly health commissioner of New York City, director of the bureau of laboratories of the New York City Health Department, a post he held at the time of his death, service member of the American Medical Association, in 1946 won the Lasker Award of the American Public Health Association for research into the penicillin treatment of syphilis, also received awards from the Association of Military Surgeons of the United States, the American Social Hygiene Association, the National Association of Venerealogists of Mexico, and the National Federation of Medicine in Guatamala, served as chairman of the Committee of Experts on Venereal Disease of the World Health Organization, chairman of the National Advisory Serology Council and of the Committee on Standardization of Serological Tests for Syphilis of the American Public Health Association, at one time associate clinical professor of dermatology and syphilology at New York University College of Medicine and in dermatology at Columbia University College of Physicians and Surgeons, author of articles, published in professional journals, died in the U S Public Health Service Hospital, Stapleton, L I , Feb 23, aged 67, of cerebral hemorrhage

Napier, Charles Dwight, Sag Harbor, N Y , born in Brooklyn Jan 31, 1864, Columbia University College of Physicians and Surgeons, New York City, 1890, served on the faculty of the Long Island College of Medicine, an associate member of the American Medical Association, member of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons, fellow of the American College of Surgeons, formerly practiced in Brooklyn, where he was attending orthopedic surgeon, House of St Giles the Cripple, and on the staffs of St Mary's, Kings County, Methodist, St John's Episcopal, Caledonian, Long Island College, and Wyckoff Heights hospitals, and the Southampton (N Y) Hospital, died Feb 18, aged 93, of myocardial failure

Dyment, Bertha Sabin Stuart, Stanford, Calif , born in Memphis, Mich , July 18, 1878, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1908, served with the Red Cross overseas during World War I, in 1934 resigned as medical adviser to women and director of physical education for women at Stanford University, Palo Alto, which she joined in 1929, assistant director of physical education for women at her alma mater from 1902 to 1907, when she became director, served as director of physical education for women and medical adviser at the University of Oregon, Eugene, and the Reed College in Portland, Ore , formerly associated with the California State Board of Health, died Feb 1, aged 78

Leydic, Clarence Loraine, Tarentum, Pa , born March 30, 1872, Western Pennsylvania Medical College, Pittsburgh, 1897, an associate member of the American Medical Association, veteran of World War I, for many years examining physician for the school district, during World War II and the Korean conflict was medical officer for the district draft board and was awarded certificates of meritorious service by presidents Roosevelt and Truman, one of the founders of the Allegheny Valley Hospital, where he served as a member of the staff, chairman of the board of the First National Bank in Tarentum, surgeon for the Pennsylvania Railroad, died Feb 3, aged 84, of coronary occlusion

Albertson, Harvey S , Oswego, N Y , born in 1875, Cleveland Homeopathic Medical College, 1907, an associate member of the American Medical Association, veteran of World War I, became Oswego city health officer in 1920 and continued in that office until 1930, one of the founders of the Oswego County Health Association and for many years vice-president, served as trustee of the Oswego City Savings Bank, member of the board of managers of Oswego County Sanatorium in Richland, an emeritus member of the staff and formerly member of the division of pathology at the Oswego Hospital, where he died Feb 7, aged 81, of coronary sclerosis

Fortescue, Thomas Aloysius, Captain, U S Navy, retired, Paoli, Pa , born in Philadelphia Sept 23, 1884, Jefferson Medical College of Philadelphia, 1908, interned at the Philadelphia General Hospital, appointed an assistant surgeon in the medical corps of the U S Navy Aug 29, 1913, during his more than 33 years active service served with the Navy Medical Department throughout the United States and on board ships of the fleet, placed on the retired list by reason of physical disability on May 1, 1947, service member of the American Medical Association, died in the U S Naval Hospital, Philadelphia, Feb 22, aged 72, of myocardial infarction

Jackson, Walter Leo ⊕ High Point, N C , born in Reidsville, Nov 1, 1884, North Carolina Medical College, Charlotte, 1911, past-chairman of the High Point Civil Service Commission, a member of the board of directors of the State Medical Care Commission, formerly associated with the Guilford General Hospital, past-president of the medical staff of High Point Memorial Hospital, past-president and

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⊕ Indicates Member of the American Medical Association

member of the board of directors of the local YMCA, past-president of the Kiwanis Club, vice-president and member of the board of directors of the Central Savings Bank, died Jan 26, aged 72, of coronary thrombosis

Pattison, Harry Archibald, Claverack, N Y, born in 1877, Chicago Homeopathic Medical College, 1904, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910, fellow of the American College of Physicians, member of the American Trudeau Society, British Tuberculosis Association, and the International Union Against Tuberculosis, served as supervisor of the medical service of the National Tuberculosis Association, formerly director of the Potts Memorial Institute in Livingston, author of 'Rehabilitation of the Tuberculous', died in the Columbia Memorial Hospital, Hudson, Feb 14, aged 79, of cerebral hemorrhage

Reisinger, John Charles ⊕ Washington, D C, born in Rockville, Md, Aug 23, 1901, George Washington University School of Medicine, Washington, D C, 1927, specialist certified by the American Board of Internal Medicine, medical adviser to the district branch of the Selective Service System, instructor of medicine at Johns Hopkins University School of Medicine, Baltimore, from 1930 to 1931, when he became clinical instructor of medicine at George Washington University School of Medicine, serving until 1935, formerly on the staff of the Central Dispensary and Emergency Hospital, died in the George Washington Hospital March 5, aged 55

Wiedenmann, John Charles ⊕ Englewood, Colo, born in Hepler, Kan, June 14, 1899, Johns Hopkins University School of Medicine, Baltimore, 1930, served as secretary and president of the Arapahoe County Medical Society, for many years county health officer and city physician, one of the founders and past-president of the Englewood Rotary Club, a director of the Denver Chapter of Arthritis and Rheumatism Foundation, served on the staffs of Swedish National Sanatorium in Englewood, and St Luke's Hospital and the Porter Sanitarium and Hospital in Denver, where he died Jan 12, aged 57, of cerebral hemorrhage

Eisenstein, Victor William ⊕ New York City, born Sept 15 1904, George Washington University School of Medicine, Washington, D C, 1929, specialist certified by the American Board of Psychiatry and Neurology, member of the American Psychosomatic Society, fellow of the American Psychiatric Association, served a residency at the New York State Psychiatric Institute and Hospital in New York City, chief in psychiatry at the Lenox Hill Hospital, editor of 'Neurotic Interaction in Marriage and the author of articles in the scientific journals, died Feb 3, aged 52, of coronary disease

Foley, Floyd K ⊕ Owensboro, Ky, born March 29, 1885, University of Louisville (Ky) Medical Department, 1911, specialist certified by the American Board of Psychiatry and Neurology, member of the American Psychiatric Association, past-president of the Kentucky Psychiatric Association, veteran of World War I, formerly superintendent of the Eastern State Hospital in Lexington and the Western State Hospital in Hopkinsville, at one time with the Pension Bureau in Washington, D C, died in the Veterans Administration Hospital, Louisville, Feb 3, aged 71, of myocardial infarction

Mecray, Paul Mulford, Camden, N J, University of Pennsylvania Department of Medicine, Philadelphia, 1892, member of the founders group of the American Board of Surgery, veteran of the Spanish-American War, for many years secretary of the Camden County Medical Society, fellow of the American College of Surgeons, retired chief of staff, Cooper Hospital, where he was a member of the board of managers, served on the staff of the Salem (N J) County Memorial Hospital and the Zurbrugg Memorial Hospital, Riverside, died in Lake Wales, Fla, Feb 13, aged 85, of coronary occlusion

Joelson, James Joel ⊕ Cleveland, Columbia University College of Physicians and Surgeons, New York City, 1920, clinical professor of urology at the Western Reserve University School of Medicine, specialist certified by the American Board of Urology, member of the American Urological Association, fellow of the American College of Surgeons, veteran of World War II, associate surgeon in charge of genitourinary surgery, University Hospitals of Cleveland, died in the Hanna House of University Hospitals Feb 8, aged 59, of coronary thrombosis

Howe, Hubert Shattuck ⊕ New York City, Columbia University College of Physicians and Surgeons, New York City, 1912, specialist certified by the American Board of Psychiatry and Neurology, member of the American Neurological Association and the Association for Research in Nervous and Mental Diseases, for many years clinical professor of neurology at his alma mater, served on the staffs of the Presbyterian Hospital and the Neurological Institute, died in the Roosevelt Hospital Feb 4, aged 68

Maresh, Henry Rudolph ⊕ Houston, Texas, University of Texas School of Medicine, Galveston, 1919, formerly clinical assistant professor of clinical medicine at the Baylor University College of Medicine, member of the staffs of St Joseph's and Methodist hospitals, on the visiting staff of Hermann Hospital, a consultant in internal medicine at Polly Ryon Memorial Hospital, Richmond, died in the M D Anderson Hospital Jan 28, aged 66, of bronchogenic carcinoma with metastases

Aday, J Leo ⊕ Little Rock, Ark, University of Arkansas School of Medicine, Little Rock, 1937, fellow of the American College of Surgeons, veteran of World War II, on the staffs of the St Vincent Infirmary and the Arkansas Baptist Hospital, where he died Feb 15, aged 44, of coronary thrombosis

Becker, William Christian, Winter Park, Fla, Jefferson Medical College of Philadelphia, 1917, service member of the American Medical Association, at one time an officer in the regular Navy, retired from the Veterans Administration on March 28, 1956, died Feb 19, aged 67

Comer, Robert T ⊕ Birmingham, Ala, Johns Hopkins University School of Medicine, Baltimore, 1901, for many years head of the health department of the Avondale Mills, died March 4, aged 80, of ascending kidney infection and benign prostatic obstruction

Dozier, William Bate ⊕ Nashville, Tenn, University of Nashville Medical Department, 1905, member of the American Academy of General Practice, died in the Mid-State Baptist Hospital Jan 27, aged 74, of pneumonia

Eichenbronner, David, Amsterdam, N Y, Albert-Ludwigs-Universitat Medizinische Fakultat, Freiburg, Baden, Germany, 1902, an associate member of the American Medical Association, on the staffs of the Amsterdam City Hospital and St Mary's Hospital, where he died Jan 25, aged 78, of arteriosclerotic coronary artery disease

Ernst, Harold Oliver, New Orleans, Tulane University School of Medicine, New Orleans, 1922, member of the Louisiana State Medical Society, died in the Touro Infirmary Nov 26, aged 57, of bronchogenic carcinoma of the right lung

Farquhar, Elwood Miller, Santa Monica, Calif, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897, died Jan 17, aged 88

Fisher, Leon Gabriel, New York City, Columbia University College of Physicians and Surgeons, New York City, 1912, medical examiner for the New York State Department of Labor, died in the Maimonides Hospital, Brooklyn, Feb 3, aged 66, of ruptured aortic aneurysm

Forbes, Stephen Alfred ⊕ Chicago, Rush Medical College, Chicago, 1937, assistant professor of radiology at the University of Illinois College of Medicine, at one time assistant professor of radiology at the State University of Iowa College of Medicine in Iowa City, specialist certified by the American Board of Radiology, member of the Radiological Society of North America and the American College of Radiology, died March 16, aged 47

Fuesy, Joseph Ralph, Croton-on-Hudson, N Y, New York Medical College, Flower and Fifth Avenue Hospitals, New York City, 1953, interned at Grasslands Hospital in Valhalla, certified by the National Board of Medical Examiners, served a residency at the White Plains (N Y) Hospital and St Luke's Hospital in New York City, where he died Jan 31, aged 32, of leukemia

Garding, Clarence Jacob, Jefferson, Wis, Creighton University School of Medicine, Omaha, 1927, veteran of World War I, on the staffs of the Fort Atkinson (Wis) Memorial Hospital and the St Mary's Hospital in Watertown, where he died Jan 25, aged 57, of polycystic kidney

Gerwitz, Bernard William ⊕ St Louis, St Louis University School of Medicine, 1930, instructor in gynecology and obstetrics at his alma mater, member of St Louis Medical Society and St Louis Gynecological Society, since 1933 assistant gynecologist and obstetrician at St Mary's Group of Hospitals, formerly on the staff of St Louis City Hospital, died Jan 29, aged 53, of cancer

Gilstrap, William J, ⊕ Portland, Ore, College of Physicians and Surgeons of San Francisco, 1903, died in the Grande Ronde Hospital, La Grande, Feb 12, aged 86, of carcinoma of the colon with metastases

Givens, Robert T, New Castle, Va, University College of Medicine, Richmond, 1901, died in the Lewis Gale Hospital, Roanoke, Dec 23, aged 80

Goldstein, David, Brooklyn, Long Island College Hospital, Brooklyn, 1906, died Jan 3, aged 72, of arteriosclerotic heart disease

Graves, Allen Bouthrod, New York City, Howard University College of Medicine, Washington, D C, 1908, died Feb 3, aged 78, of cerebral arteriosclerosis

Greenberg, Samuel ⊕ Newark, N J, University and Bellevue Hospital Medical College, New York City, 1904, on the staff of the Beth Israel Hospital, where he died Feb 8, aged 75, of cerebral hemorrhage

Gregory, Dewey Quintin ⊕ Eureka, Calif, College of Medical Evangelists, Loma Linda and Los Angeles, 1943, interned at the Los Angeles County Hospital, in Los Angeles, killed in an automobile accident Feb 3, aged 58

Gruskin, Harry ⊕ Brooklyn, Boston University School of Medicine, 1928, veteran of World War II, died in the Mount Sinai Hospital, New York City, Jan 14, aged 52, of diabetes mellitus, cirrhosis of the liver, and nephrosis

Guy, Franklin Wheeler, New Castle, Pa, Western Pennsylvania Medical College, Pittsburgh, 1906, an associate member of the American Medical Association, on the staff of the Jameson Memorial Hospital, died Feb 6, aged 86, of cerebral hemorrhage

Hall, Samuel J, ⊕ Medical Director, U S Public Health Service, Philadelphia, University of Louisville (Ky) School of Medicine, 1927, died Feb 1, aged 57, of coronary occlusion

Hamilton, Robert Lucian ⊕ Marysville, Calif, University of Tennessee College of Medicine, Memphis, 1929, member of the American Academy of General Practice, fellow of the International College of Surgeons, veteran of World War II, decorated with the Purple Heart and received the Army Commendation Ribbon, past-president of the Yuba-Sutter-Colusa Counties Medical Society, died Feb 1, aged 52, of coronary occlusion

Haney, Frederick Charles ⊕ Watertown, Wis, Bennett College of Eclectic Medicine and Surgery, Chicago, 1907, died in St Mary's Hospital Dec 9, aged 77, of lymphosarcoma and pneumonia

Harris, Carl Nathaniel ⊕ Hibbing, Minn, Rush Medical College, Chicago, 1915, past-president of the Minnesota State Sanitary Association, veteran of World War I, village health officer from 1934 to 1942, on the staff of the Adams Clinic and Hibbing General Hospital, died in the Methodist Hospital, Rochester, Minn, Feb 10, aged 69, of carcinoma of the lung

Hayes, Floyd Warner ⊕ Bradford, Pa, University of Buffalo School of Medicine, 1914, specialist certified by the American Board of Otolaryngology, fellow of the American College of Surgeons, veteran of World War I, an honorary member of the staff of the Bradford Hospital, where he died Feb 9, aged 67, of cerebral hemorrhage

Heath, Guy Wilkerson, West Palm Beach, Fla, Tulane University School of Medicine, New Orleans, 1920, member of the Florida Medical Association, member of the staff of St Mary's Hospital, where he was on the advisory board, and the Good Samaritan Hospital, died in Jupiter Feb 3, aged 62, as the result of a boat accident while fishing in the ocean

Heberding, John ⊕ Youngstown, Ohio, Western Pennsylvania Medical College, Pittsburgh, 1905, specialist certified by the American Board of Radiology, member of the American Roentgen Ray Society and the American College of Radiology, on the staff of the Youngstown Hospital, died Jan 26, aged 74, of cancer

Hildebrant, Paul Wiley, Mount Sterling, Ohio, University of Michigan Homeopathic Medical School, Ann Arbor, 1912, formerly mayor, died in Washington C H, Jan 30, aged 80

Hollings, Byam ⊕ Concord, N H, Harvard Medical School, Boston, 1906, in 1914 member of the House of Delegates of the American Medical Association, member of the Massachusetts Medical Society, veteran of World War I, retired assistant medical director for the John Hancock Life Insurance Company in Boston, died Jan 25, aged 79, of cerebral vascular accident

Hopkins, Howard Leslie ⊕ Leavenworth, Wash, University of Nebraska College of Medicine, Omaha, 1928, veteran of World War II, died Feb 17, aged 55

Horwitz, John B ⊕ Detroit, Detroit College of Medicine and Surgery, 1926, veteran of World War II, member of the American Academy of General Practice, on the staffs of Grace and Sinai hospitals, died Jan 13, aged 55, of coronary occlusion

Hughes, Fred Morris ⊕ Houston, Texas, University of Texas School of Medicine, Galveston, 1926, veteran of World War I and II, at one time associate professor of clinical surgery at Baylor University College of Medicine, on the staffs of the Memorial, Hermann, and St Luke's hospitals, on the courtesy staff of St Joseph s Hospital, where he died Jan 28, aged 58, in the operating room after completing a minor operation on a patient

Hull, Austin Oliver ⊕ San Antonio, Texas, University of Louisville (Ky) Medical Department, 1913, for many years city bacteriologist, died in Santa Rosa Hospital Jan 28, aged 65, of thrombosis

Hunter, John Russell Wightman, Lewistown, Pa, Medico-Chirurgical College of Philadelphia, 1893, an associate member of the American Medical Association, fellow of the American College of Surgeons, member of the surgical staff and board of trustees for many years at the Lewistown Hospital, where he died Jan 26, aged 88, of cerebral thrombosis

Hutchinson, Sankey Smith, Bladenboro, N C, North Carolina Medical College, Charlotte, 1911, member of the Medical Society of the State of North Carolina, served as past-president of the Bladen County Medical Society, chairman of the city and county board of education, surgeon for the Scotland Air Line Railway, on the staff of the Robeson County Memorial Hospital, Lumberton, where he died Feb 11, aged 68, of myocardial infarction

Jacobs, William Rigby ⊕ Lewiston, Idaho, Rush Medical College, Chicago, 1937, specialist certified by the American Board of Ophthalmology, veteran of World War II, receiving the Air Medal with three oak leaf clusters, chairman of the ophthalmological section, St Joseph's Hospital, died Jan 26, aged 50, probably of coronary thrombosis

Jamieson, William Ross ⊕ El Paso, Texas, McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1898, also a graduate in pharmacy, past president of the El Paso County Medical Society, veteran of World War I, on the staff of the El Paso General Hospital and the Hotel Dieu, Sisters' Hospital, died in the Veterans Administration Hospital, Fort Bayard, N Mex, Jan 24, aged 81

Jamison, Euell Claude ⊕ Rocky Mount, Va, Medical College of Virginia, Richmond, 1927, veteran of World War II, member of the Roanoke Academy of Medicine, member of the Rocky Mount Town Council, a director of the Bankers Trust Company of Rocky Mount, trustee of the Franklin Memorial Hospital, where he was an active member of the medical staff, died Jan 29, aged 56, of lymphosarcoma

Johnston, Irwin, Cohoes, N Y, Albany (N Y) Medical College, 1911, an associate member of the American Medical Association, served on the staff of the Samaritan Hospital in Troy, died Feb 13, aged 70, of arteriosclerotic heart disease

Jones, J N, Bastrop, La, Memphis (Tenn) Hospital Medical College, 1907, member of the Louisiana State Medical Society died in the Bastrop General Hospital Nov 29, aged 76, of congestive heart disease

Kazlauckas, Anthony John ⊕ Cleveland, St Louis University School of Medicine, 1931, formerly Cuyahoga County deputy coroner, on the staff of the Polyclinic Hospital, where he died Jan 18, aged 52, of cerebral hemorrhage

Landis, James Calvin, Pennsburg, Pa, Medico Chirurgical College of Philadelphia, 1902, for many years member of the school board, served on the staff of the Quakertown (Pa) Community Hospital, where he died Feb 10, aged 79

Lanning, Walter Benjamin, De Queen, Ark, University of Arkansas School of Medicine, Little Rock, 1913, died Feb 7, aged 72, of aneurysm of the aorta

Latta, Reginald Heber, Graysville, Ohio, Ohio State University College of Medicine, Columbus, 1917, member of the Ohio State Medical Association, mayor of Graysville and president of the Monroe County Board of Health, died Jan 18, aged 64, of coronary thrombosis

Lauter, Leo ⊕ Toledo, Ohio; Albertus-Universitat Medizinische Fakultat, Konigsberg, Prussia, Germany, 1920; member of the American Academy of General Practice; on the staffs of the St. Luke's and Flower hospitals; died Feb. 11, aged 63.

Leaper, Warren Eugene ⊕ Green Bay, Wis.; Johns Hopkins University School of Medicine, Baltimore, 1911; past-president of the Brown-Door-Kewaunee Counties Medical Society; on the staffs of St. Vincent's, Bellin Memorial, and St. Mary's hospitals; died Jan. 20, aged 70, of coronary occlusion.

Leavitt, Thomas William, Malden, Mass.; College of Physicians and Surgeons, Boston, 1920; member of the Massachusetts Medical Society; veteran of World War I; formerly Malden alderman; died in Medford Feb. 6, aged 65.

Lemon, Charles Warner, Lewisburg, W. Va.; University College of Medicine, Richmond, 1898; an associate member of the American Medical Association; in 1914-1915 member of the state legislature; staff physician at Greenbrier Military School from 1932 until 1955; died in the Greenbrier Valley Hospital, Ronceverte, March 6, aged 81.

Leonard, John Vaughn, Menlo Park, Calif.; Medical Department of the University of California, San Francisco, 1901; died in the Palo Alto (Calif.) Hospital Jan. 28, aged 79.

Lessig, James Blee ⊕ Sinking Spring, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1930; on the staff of the Reading (Pa.) Hospital, where he died Jan. 23, aged 51, of carcinoma of the lung.

MacFarlane, Nowland, Pacific Palisades, Calif.; Beaumont Hospital Medical College, St. Louis, 1900; formerly practiced in Los Angeles, where he was on the staffs of the Clara Barton, Queen of Angels, and Methodist hospitals; died Jan. 26, aged 80.

McEwan, James William, Alma, Mich.; L.R.C.P., Edinburgh and L.R.C.S., Edinburgh, Scotland, 1904; Detroit College of Medicine, 1907; veteran of the Spanish-American War and World War I; formerly practiced in Detroit, where he was on the staff of the Harper Hospital; died Jan. 23, aged 80, of carcinoma of the rectum.

McLean, Harold Guy ⊕ Detroit; Detroit College of Medicine and Surgery, 1920; fellow of the International College of Surgeons and the American College of Surgeons; vice-chief of surgery at the Grace Hospital, where he died Feb. 8, aged 60, of coronary occlusion.

McWilliams, Jacob Marvin ⊕ Fayetteville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1901; died in the Lincoln County Hospital Feb. 2, aged 79, of cerebral hemorrhage.

Mars, John Francis, Newburgh, N. Y.; McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1918; member of the Medical Society of the State of New York; served on the staff of the Cornwall (N. Y.) Hospital, on the courtesy staffs of Goshen (N. Y.) Hospital and St. Luke's Hospital; died Jan. 26, aged 64.

Max, Clarence Oscar Christian ⊕ St. Louis; Washington University School of Medicine, St. Louis, 1899; served on the staffs of St. Mary's Hospital, St. Mary's Infirmary, St. Anthony Hospital and Missouri Baptist Hospital; died in Barnes Hospital Feb. 15, aged 82, of myocardial infarction.

Mayo, Bessie Evelyn, Oklahoma City, Okla.; Baylor University College of Medicine, Dallas, Texas, 1923; died Jan. 20, aged 58, of rheumatic heart disease.

Mellies, George Augustus ⊕ St. Louis; Homeopathic Medical College of Missouri, St. Louis, 1895; member of the American Academy of General Practice; veteran of World War I; for many years associated with the Christian Hospital, where he was for many years chief surgeon and president of the medical staff and where he died Feb. 1, aged 82, of heart disease.

Mellman, Clarence, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1917; died Jan. 29, aged 62, of acute cardiac failure.

Messerly, Charles Buchanan ⊕ Martins Ferry, Ohio; College of Physicians and Surgeons, Baltimore, 1902; for many years served on the board of education of Martins Ferry; at one time county coroner; veteran of World War I; a director of the Citizens Savings Bank; one of the founders of the Martins Ferry Hospital, where he was a member of the staff, and where he died Jan. 31, aged 77, of coronary disease.

Moore, Russell Malachi ⊕ Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1885; died Jan. 21, aged 93, of carcinoma of the lungs.

Morris, Harry Rembert ⊕ Birmingham, Ala.; University of Nashville (Tenn.) Medical Department, 1906; died in Miami, Fla., Feb. 13, aged 73, of pulmonary edema, portal cirrhosis, and portal-vein thrombosis.

Murray, Robert Allen ⊕ La Mesa, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1938; certified by the National Board of Medical Examiners; served on the staffs of Mercy and Quintard hospitals in San Diego; died Jan. 17, aged 47, of squamous-cell carcinoma of the tongue and floor of mouth.

Myers, Lloyd ⊕ San Diego, Calif.; University of Nebraska College of Medicine, Omaha, 1918; died Dec. 21, aged 65, of hypertensive cardiovascular heart disease.

Owen, John Atkinson, South Boston, Va.; University of Virginia Department of Medicine, Charlottesville, 1903; died in the Veterans Administration Hospital, Richmond, Jan. 24, aged 76, of arteriosclerosis.

Pantera, George Benedict ⊕ Buffalo; Georgetown University School of Medicine, Washington, D. C., 1936; certified by the National Board of Medical Examiners; formerly practiced in Oak Hill, where he was on the staff of the Oak Hill Hospital; died in Cleveland Feb. 8, aged 47, of heart disease.

Parmenter, Bert Newton, Sheboygan, Wis.; Northwestern University Medical School, Chicago, 1896; died in the Sheboygan Memorial Hospital Feb. 26, aged 86, of auricular fibrillation, and coronary sclerosis.

FOREIGN LETTERS

INDIA

Basal Cell Carcinoma —M V Sirsat (*Indian J M Sc* 11 1, 1957) compared the age, incidence, site of occurrence, and histopathology of basal cell carcinoma in Indians and Europeans Between 1941 and 1955, 200 cases of basal cell carcinoma were recorded in the laboratories of the Tata Memorial Hospital, Bombay, of which 148 occurred in Indians and 52 in Europeans Most of these patients were between 41 and 60 years of age There was no significant difference in age distribution in the two groups The most frequent sites of occurrence of the tumor in Indians were the cheek, eyelids, and nose, while in Europeans the most frequent site was the nose The reticulated variety of basal cell carcinoma was commonest in Europeans and the adenoid cystic type in Indians

Shortage of Nurses —At the meeting of the Central Council of Health at Ranchi, there was deep concern over the limited progress made in implementing the recommendations of the nursing committee Therefore, the council again urged state governments to improve the emoluments and working conditions of nurses About 17 000 nurses and 21,000 midwives are practicing in India This number falls far short of the needs The health survey and development committee had recommended that there should be a ratio of one nurse to every 500 persons and one midwife for every 100 births On this basis, the total requirements of nurses and midwives would be 70,000 and 87,500 respectively In order to meet the increasing demand for health personnel, a plan for training about 6,000 additional auxiliary-nurse midwives has been included in the second Five-Year Plan

Lymphomas of the Pharynx —G V Talwalkar (*J Postgraduate Med* 3 1, 1957) studied 54 cases of malignant lymphoma of the pharynx, which constituted 10% of the proved malignant lymphomas encountered in a period of 15 years The patients varied in age from 6 to 85 years, 35 being between 30 and 60 The duration of symptoms varied from eight days to one year, the most usual time being two to three months Swelling of the neck was the main complaint in 20 cases Generalized enlargement of lymph nodes was present in three patients Pain in the throat was a common complaint Difficulty in swallowing was present in 13 patients, a mass in the throat in 11, a change in voice in 5, and epistaxis in 4 Deafness was the only complaint in one The tonsils were primarily involved in 35 patients Of these, 10 showed an ulcerative lesion, 5 showed a bulky growth, 6 showed uniform enlargement of the tonsils, and 9 had a nodular growth Most nasopharyngeal lymphomas were large and occupied most of the nasopharyngeal space Lesions seen at the base of the tongue were either ulcerative or nodular Lymph nodes were palpable in 45 cases Most of the patients underwent irradiation therapy, three after tonsillectomy Complete regression of the primary lesion and the cervical lymph nodes was seen within two months in 24 patients Partial response was noticed in 12 One patient with generalized lymphosarcoma with a lesion in the tonsil responded well to nitrogen mustard A complete follow-up was not available, as patients failed to return Histologically, follicular lymphoma was diagnosed in two patients, both in the tonsils

Nystatin in the Treatment of Moniliasis —Pohowalla and co-workers (*Indian J M Sc* 11 1, 1957) stated that, since thrush is commonly seen in children, they sought to assess the effectiveness of nystatin in its treatment Twenty-eight children with thrush were studied clinically and 27 of these also bacteriologically The disease was clinically cured in 75% of the patients by the seventh day of treatment Cultures became negative in 60% of the children within the same period The nystatin was given orally Diarrhea was the commonest complication of thrush, being present in 75% of the patients, 13 of these patients also showed dehydration All the seven deaths that occurred in the series were in dehydrated patients

Isolated Fracture of the First Rib —Donaldson and Marshall (*Indian Journal of Surgery*, December, 1956) reported a case of isolated fracture of the first rib This condition is so infrequently encountered that it is apt to be missed This is due to the situation of the first rib deep in the base of the neck, where it is usually protected from trauma by the shoulder girdle The importance of this fracture lies in the fact that it may result in rupture of the apex of the lung, abscess formation, pleurisy with effusion hemorrhage, nerve pressure and Horner's syndrome The authors' patient was a 54-year-old man who, while lifting baggage, had felt a sudden excruciating pain in the left upper portion of his chest This was followed by breathlessness and faintness These symptoms were relieved by nikethamide and coffee The pain persisted but was ignored by the patient till about six weeks later when he started getting pain in the left side of his neck, left shoulder, and arm The pain increased in severity and radiated down to the tips of his middle and ring fingers He also complained of a feeling of something filling the left upper portion of his chest A roentgenogram showed fracture of the left first rib at the costochondral junction

NEW ZEALAND

Synaptic Transmission in Sympathetic Ganglions —At the 32nd meeting of the Australian and New Zealand Association for the Advancement of Science, in Dunedin, in January, Rosamond M Eccles of the Australian National University, Canberra, reported that when the synaptic transmission of impulses through the isolated superior cervical ganglion was blocked by

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The items in these letters are contributed by regular correspondents in the various foreign countries

curare-like substances, preganglionic impulses still produced three types of postganglionic potentials a synaptic potential, a later positive potential (P wave), and a late negativity (LN) wave superimposed on the latter part of the P wave Addition of any anticholinesterase, in a suitable concentration, causes a complete disappearance of the LN wave, and thereby reveals the full size and time course of the P wave This effect of anticholinesterases is due to their anticholinesterase action and not to any depolarization of the postsynaptic membrane, since depolarizing agents such as nicotine or increased potassium ion concentration do not selectively decrease the LN wave Other pharmacological agents such as epinephrine, strychnine, and veratrine do not cause any appreciable alteration in the size or time courses of the synaptic potentials, the positivity wave, or the late negativity wave Such results indicate that synaptic transmission in the sympathetic ganglion is more complicated than at the neuromuscular junction, where only a single transmitter appears to be operating on a single type of membrane receptor

Bloat —Bloat is a disorder of ruminants that occurs wherever grazing of legumes is practiced It is the result of interference with elimination of gas that is normally produced by the bacterial fermentation of food in the rumen and reticulum At the same meeting, A T Johns and co-workers of Palmerston North reported the results of trials undertaken to test the various theories put forward to explain the cause of the ailment It was found that most of the gas produced was being retained in a foam and therefore not free to be eructated A system of control of bloat caused by leguminous pastures was evolved, using vegetable oils as antifoaming agents The tendency of certain animals to bloat appears to be an inherited characteristic, and, hence, both pasture and animal factors seem to be involved Trials with the use of orally administered penicillin to protect animals from bloat indicate that the flora of the rumen is a major contributing factor

Endocrine Adaptations to the Tropics —At the same meeting Prof W V Macfarlane of Brisbane stated that metabolic rate and thyroid activity have been found to be depressed in rats, sheep, and man by periods of living at temperatures above 30 C Food intake is reduced and water intake increased The metabolically active components of the adrenal steroid secretion also appear to be depressed during the hot seasons and elevated during the cooler parts of the year This applies to 17-ketosteroid output and 17-hydroxycorticoid excretion The intake of water by man and sheep in summer is increased to about 12 times the winter intake When evaporative cooling is employed in the hotter parts of the year, antidiuretic hormone appears in the blood to reduce urine flow Urine flow, however, is reduced at these times without there being measurable amounts of antidiuretic hormone in the blood The antidiuretic hormone appears to be an adjuvant to other water-saving mechanisms It is released by heat (four hours at 41 C) in summer, but not in winter, in man and sheep

In both species, the ratio of potassium to sodium in the urine is high in summer and low in winter This is associated with aldosterone excretion after sweat-producing exercise such as that described by Neher and Wettstein It was found that the potassium/sodium ratio in the urine becomes high within two hours of exposure to a temperature of 40 C As this ratio rises, the antidiuretic hormone concentration in the blood also rises Artificial acclimatization of sheep by the use of 0 15 mg of desoxycorticosterone acetate per kilogram of body weight intramuscularly did not produce antidiuretic hormone at rest in a neutral environment (22 C), but, on heating, these animals were found to have high levels of antidiuretic hormone in the plasma This action lasts for about one day, and after that, heat, again, in winter produces no antidiuretic hormone It appears that the salt-saving hormones, which appear earlier than antidiuretic hormone in the hot season, prepare the cells by increasing intracellular sodium and decreasing the intracellular water so that there is a more facile release of water-saving hormone

In the northern parts of Australia there is a 30% reduction in conception during summer as compared to winter Comparison of data from towns of similar population in the north and south of the country showed lower reproductive rates in man in the hot region than in the cooler parts of the south Among sheep and cattle in the tropical regions there is a low rate of reproduction In the tropical pasture lands, conception rarely occurs in more than 60% of the ewes and cows In rats and rabbits, it has been found that large numbers of fetuses resorb if the animal is maintained at a temperature of about 35 C Analysis of this fetal resorption has shown that supplementary thyroid hormone, increased protein and vitamin intake, or supplementary progesterone can save a certain number of fetuses from resorption Acclimatization, however, appears to be the most satisfactory means of protecting the fetus even though the number of ovulations is reduced by acclimatization for one month at 35 C The protection afforded by acclimatization is completely overcome by injections of 2 mg a day of cortisone It appears that excessive mobilization of cortisone or 17-hydroxycorticosterone may account for fetal resorption Such resorption has been observed in sheep also, and it may be that the human fetus may be resorbed in the early stages of gestation if the mother is exposed to high ambient temperatures Temperatures up to 43 C occur in the summer in the Australian tropics

Hypophysectomy in Man —At the same meeting, Dr J A James and co-workers of the Neurosurgical Unit of the Dunedin Hospital reported a series of 21 patients with disseminated mammary cancer who were subjected to hypophysectomy There were three operative deaths Two patients with cancers arising during pregnancy were not influenced by the procedure Several patients were followed up for only a short time, but two patients survived for over a year There is often great relief from pain in those with bony metastases Cutaneous deposits tend to heal There is portion of severe cases among all children under 7 years of age was consistently higher in patients with chronic sinusitis than in those without the disorder Of the 2,838 children under 5 years of age in the investigation, 1,184 were mainly breast-fed Over the whole five-year period the incidence of mild cases was 36 4% of breast-fed patients and 29 7% of bottle-fed patients—a statistically significant difference It could not be shown that a history of measles in the mother had any additional effect on the protection given by breast feeding For all breast-fed patients under 5 years of age, the percentage of mild attacks among children whose mothers had had measles was lower (36%) than among those whose mothers had not had measles (40%)

The report concludes that the routine use of sulfonamides in the early stages of measles does not uniformly lower the incidence of complications It lowers the rate for acute otitis media in older children and in those with chronic sinusitis, and it is especially valuable in those with a past history of otitis media On the other hand, it does nothing to reduce the rate of severe pulmonary complications and may be a factor in raising this rate, especially in children under 2 years of age or in others with a mild attack In other words, there is no evidence to suggest that either sulfonamides or antibiotics are of prophylactic rather than curative value

Doctor or Mister—A protest against the traditional British custom of referring to a surgeon as "Mister" and not 'Doctor" is registered in a scholarly article by Dr George Graham (*Lancet* 1 264, 1957), who says that this curious practice, which does not exist in any other country, seems to arise from the old antagonism between the Royal College of Physicians and the Barber Surgeons Company after its formation in 1540 The members of the company rarely, if ever, had a degree of doctor of medicine, and their general education was certainly inferior to that of the physicians Furthermore, in those days the surgeons were under the domination of the physicians Now that the standards for physicians and surgeons are the same, it is strange that the distinction should still exist This practice causes much confusion among patients and the general public who cannot understand why a properly qualified doctor should not be so called It also causes inconvenience to themselves if they travel in countries where all medical men are called "Doctor"

Portacaval Anastomosis—In the *Lancet* (Jan 12, 1957) R M Walker states that the indications for portacaval anastomosis are hemorrhage from esophageal and gastric varices resulting from intrahepatic venous obstruction and the risk of such hemorrhage when large varices are known to exist Contraindications to the operation are the presence of severely impaired liver function and a portal vein unsuitable for anastomosis To determine the site of venous obstruction, transsplenic portal venography is used as a routine procedure Of a series of 56 patients, on each of whom end-to-side portacaval anastomosis was performed, 53 survived the operation In each of the 50 of those who had not had a previous portal venous system operation, there was no recurrence of the hemorrhage The most serious drawback of the operation was neuropathy, which may complicate a portal vein shunt Transient symptoms were the usual complication, occurring in 20% of the patients and ranging from mental disorientation to coma, and could be precipitated by taking a large protein meal In no patients there was no evidence of deterioration of liver function during the follow-up period, which in some cases was five years Thus, portacaval anastomosis has an important place in the management of portal hypertension

The Elderly Disabled—Many older persons admitted to the hospital have nowhere to go on discharge but many have some degree of disability, thus they are forced to stay in the hospital Their beds are urgently needed, and the cost of keeping these patients hospitalized is from $33 to $43 a week The administrative gap between the National Health Service and the National Assistance Act is responsible for this situation Since World War II a great deal had been done for older people, including the setting up of [illegible] geriatric units and 900 residential homes The home-nursing service made 12 5 million visits a year to the elderly A survey made on behalf of the Ministry of Health led to the conclusion that, if greater coordination of the efforts of hospitals, physicians, and welfare officers with welfare and local authorities could be made, more efficient use of the available services would ensue Thus, by additional home help, a number of hospitalized patients might return home, releasing much-needed beds

Recurrent Goiter—Piercy and Lange (*Lancet*, Jan [illegible] 1957) report that of 3,500 patients seen at the thyroid clinic, 118 had true recurrence of goiter or thyrotoxicosis after thyroidectomy had been performed Several were found to be in a hypothyroid state with hypertrophied remnants of gland due to stimulation by thyrotropic hormone These patients were treated successfully by thyroid extract The treatment of recurrent goiter is difficult, and radioactive iodine has a useful place in the regimen, but, even so, only 17 of the true recurrences were treated with it Its main use has been in patients with associated vocal cord disorders in whom tetany was a complication of the operation and in whom cardiovascular involvement contraindicated operation Many so-called recurrences are the continued growth of adenomatous tissue left behind from an earlier operation The authors recommend inspection of the entire gland at the first operation The inferior thyroid arteries should always be ligated, as this is a potent factor in preventing recurrence The ligations are carried out in continuity, the artery being found by deliberately exposing the carotid artery At operation, any pyramidal lobe and all obviously pathological tissue must be removed If the remnants left behind consist of healthy secretory thyroid tissue, sufficient thyroid hormone for the body will be produced, if the remnant is only the compressed rim of the thyroid gland, all will be well The authors believe that most recurrences are preventable

CORRESPONDENCE

AMERICAN ACADEMY OF PEDIATRICS AS POISON FIGHTERS

To the Editor —The special report "Pursuing the Killers," in THE JOURNAL, Jan 12, page 114, in describing the intense professional as well as lay organized activity to combat chemical poisoning—much of it accidental and in children—mentioned "the American Association of Pediatrics" as "a pioneer poison fighter This typographical slip gives me an opportunity to identify the organization by its correct name, the American Academy of Pediatrics, and to add a brief comment to show that the American Academy of Pediatrics could more properly be credited as "the" pioneer poison fighter The academy is responsible for initiating and continuing to furnish the necessary motive power through ideas and organization not only to make possible the wide range of professional and lay organized activity described in the article but to keep the movement in high gear

The academy in 1950 created a committee on accident prevention One of the first acts of the committee was a fact-finding survey of accidents seen in pediatric practice This study revealed that accidental poisoning was very common It was found that physicians wanted help, especially information on the toxic properties of common household agents and the treatment of poisoning The committee conceived the idea of establishing poison information centers in community hospitals and developing a manual which would furnish information to the practicing physician As a member of the committee, Dr Edward Press, who was then in Chicago, was asked to take responsibility to develop this project Through his initiative and imagination, the Illinois chapter of the American Academy of Pediatrics sponsored the first poison control center This demonstration was made possible by the assistance of the Chicago Board of Health, the cooperating hospitals, the staff of the American Medican Association's Committee on Pesticides, and other Illinois groups

The Academy of Pediatrics accident prevention committee was also responsible for the statement which first called attention to the frequency of aspirin poisoning in children and suggested measures to reduce this hazard This later became a joint statement of the American Medical Association Committee on Toxicology and the American Academy of Pediatrics, and was adopted voluntarily by representatives of the pharmaceutical industry at a meeting sponsored by the Food and Drug Administration

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In closing, I should point out that the tremendous work done on this poisoning problem in all parts of the country and the creation of, at the present time, 44 poison control centers is not a spontaneous development but can be traced to a large degree to the state committee organization of the Academy of Pediatrics The state chairmen of the Academy of Pediatrics in virtually every state have set up state accident prevention committees Since the purpose of Medicine at Work is to call attention to the public spirit of American physicians, I would like to point out that these enthusiastic and dedicated pediatricians on state committees exemplify the highest ideals of American medicine Their work has been done largely through their state and county medical society memberships and their participation in the affairs of service clubs, the Parent-Teacher Association, and other child health and safety groups Thus the concern of these physicians to reduce accidents in children has become "a program"—and properly so—of these local groups When we consider what has been accomplished in preventing deaths from accidental poisoning in children in the past seven years as well as in reducing other accidents in children, we must give a full measure of credit to the efforts of all these physicians who work unsung at the community level

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GASTROINTESTINAL HEMORRHAGE AND DRUGS

To the Editor —Dr Irving Brick in his paper "Early Diagnosis in Massive Upper Gastrointestinal Hemorrhage," which appeared in THE JOURNAL, April 6, page 1217, has commented on the importance of salicylates as a cause of gastrointestinal bleeding particularly in patients with peptic ulcer

The significance of this relationship is emphasized by two recent publications on the subject Brown and Mitchell (*Gastroenterology* 31 198-203 [Aug] 9) stated that hemorrhage followed the ingestion cyl compounds in 69 5% of their series of pa bleeding duodenal ulcer Interestingly portion of severe cases among all children under 7 years of age was consistently higher in patients with chronic sinusitis than in those without the disorder. Of the 2,338 children under 5 years of age in the investigation, 1,184 were mainly breast-fed. Over the whole five-year period the incidence of mild cases was 36.4% of breast-fed patients and 29.7% of bottle-fed patients—a statistically significant difference. It could not be shown that a history of measles in the mother had any additional effect on the protection given by breast feeding. For all breast-fed patients under 5 years of age, the percentage of mild attacks among children whose mothers had had measles was lower (36%) than among those whose mothers had not had measles (40%).

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The significance of this relationship is emphasized by two recent publications on the subject Brown and Mitchell (*Gastroenterology* 31 198-203 [Aug] 6) stated that hemorrhage followed the ingestio cyl compounds in 69 5% of their series of pa bleeding duodenal ulcer Interestingly (seven) of their patients with perforated peptic ulcer had a history of salicyl intake Kelly (*Am J M Sc* 232 119-128 [Aug] 1956) reported that 20% of a series of patients with bleeding peptic ulcer were receiving salicylates when symptoms developed He also pointed out that the records of 32% of 49 patients with unexplained upper gastrointestinal bleeding revealed a history of salicylate therapy in progress for various conditions when the bleeding occurred

Findings such as mentioned above should alert the practitioner to the fact that salicylates must at all times be prescribed with caution and must be avoided in patients with gastrointestinal distress

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Medical Director
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EXPLOSIONS IN OPERATING ROOMS

To the Editor —In the summary in THE JOURNAL (Foreign Letters, Nov 3, 1956, page 1001) of the report of a working party on anesthetic explosives, there are errors in the passage about operating theater floors which give the impression that such floors should be nonconducting It is suggested that the words "without such floors' should read "with such floors 'a new, nonconductive floor should read "a new, conductive floor, and "nonconducting paint" should read 'conducting paint" The whole passage would then read

"Only 5-10% of operating rooms in Great Britain have nonconducting floors (rubber or cork) In operating rooms with such floors the danger of explosion can be decreased by dampening the floor or by putting a damp sheet down if evaporation is rapid If explosive anesthetics are used routinely, the only safe procedure is to lay a new, conductive floor The use of conducting paints for floors is being investigated

This summarizes accurately the findings of the working party on the subject

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RADIOACTIVE FALL OUT OVER CITY

To the Editor —In THE JOURNAL, March 9, page 803, Heise and Heise have suggested that a city may well offer an added measure of safety from radioactive fall-out I disagree with their meteorological interpretations and would like to explain my objections

They argue that the rising currents over a warm city account for the lower spore and mold concentration on the leeward side of the city However, since a city is not a source of spores and molds, it is difficult to distinguish between their explanation and a simple decrease in concentration farther from the source Besides, the fall velocity of radioactive particles in the first few hundred miles from a nuclear explosion is from 10 to 1,000 times greater than that of spores, molds, or pollen The slight upward current over a city which might support spores, etc , will have no important influence on such rapidly falling radioactive particles Heise and Heise's experiment in which a heated area in a small box simulated a warm city is unrealistic The horizontal wind in nature will disturb the simple convective cell of the experiment Further, as just noted, the lycopodium spores used by them fall at negligible rates compared with real radioactive particles of close-in fall-out

I can report an experiment relevant to fall out over cities At many places over the United States, the Weather Bureau operated fall-out collectors at ground levels for the Atomic Energy Commission both within cities and at nearby airports We find no systematic difference which would suggest an ameliorating influence of the city

There is no doubt that a city disturbs air flowing over it, but the upward currents which might ward off radioactive danger are too weak to influence the descent of large fall-out particles No significant meteorological benefit is believed to accrue from the city's warmth On the other hand, the city may still be safer during and after fall-out than the nearby countryside because of the availability of shielding and decontamination facilities, as well as avoiding problems of evacuation

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POSTPARTUM ELECTROSHOCK THERAPY

To the Editor —The article on electroshock therapy during the puerperium, by Impastato and Gabriel, as published in THE JOURNAL, March 23, page 1017, prompted this submission In July, 1947, because of necessity I gave electric shock therapy to a 23-year-old patient on the eighth day after cesarean section It was necessary to use 1 Gm of amobarbital sodium intravenously every eight hours after delivery to alleviate the symptoms of excitement and hyperactivity Finally, on the eighth day after surgery, with the use of curare intravenously electric shock therapy was started and given daily for eight days, with a good result in the alleviation of symptoms

A review of my records indicates that I have had to use electric shock therapy as an emergency measure for the control of symptoms in eight patients during the period of gestation I have given electric shock therapy to one patient during the eighth month of pregnancy, to two patients during the seventh month, to three patients during the sixth month, and to five more patients who were less than six months pregnant

I was the first practicing psychiatrist in Arkansas to use electric shock therapy on private patients, and decisions had to be made because of emergency measures My records for the past 10 years include the treatment of 12 patients with postpartum psychoses who received shock therapy between the 5th and 15th days after delivery of the child

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MISCELLANY

REPORT TO THE CHAMBER OF COMMERCE OF THE UNITED STATES AND THE NATIONAL ASSOCIATION OF MANUFACTURERS

William L McGrath

In January, 1956, the directors of the Chamber of Commerce of the United States adopted a resolution on continued Chamber participation in the International Labor Organization The board of directors of the National Association of Manufacturers did likewise in February, 1956 Both resolutions made clear that future participation in the ILO was contingent upon future developments For example, the NAM resolution reads, "If no change for the better in the activities and structure of the ILO is effected in the course of the 1956 sessions, the NAM will withhold its participation in the nomination of members for the 1957 delegation"

Has any "change for the better" been effected during the 1956 ILO sessions? This report is submitted in answer to that question

Major Issue

The major issue before the ILO in 1956 is increased communist participation The issue is in fact broader than communism, as it embraces socialism and nationalization of industry as well It so overshadows other considerations that this report will be limited to that subject

You may recall that at the March, 1955, meeting of the ILO governing body, instead of approving (as had been proposed) an amendment to the ILO constitution which if adopted might disqualify communist so-called employer and worker delegations, the governing body authorized the appointment of a committee (McNair committee) to study and report on the extent of freedom of employers and workers' organizations from domination and control by their governments No further action on the communist issue was taken, pending completion of the McNair report At the June, 1955, conference "tripartite delegations" from eight communist countries attended and participated This brings us up to 1956

March, 1956, Meeting of the ILO Governing Body

The McNair report was completed in February, 1956 At its March, 1956, meeting the governing body decided that, although there might be an exchange of views on the report at the June, 1956, conference, it would not be officially considered until the November, 1956, governing body meeting

June, 1956, Conference

At the June, 1956, conference a challenge to the credentials of communist so-called employers was for the second time rejected by the conference (the first time was in 1954) and tripartite delegations from nine communist countries attended and participated (Roumania had meanwhile been admitted)

In his report on this conference, Charles H Smith Jr, who served as the U S employer delegate, stated 'In all honesty, I cannot report any major improvement in the ILO itself as evidenced at the 1956 Conference' In a letter to Mr Mitchell, Secretary of Labor, dated Oct 10, 1956, Mr Smith said 'It is my belief that the United States cannot afford to continue to participate in ILO activities unless we take immediate concerted action to counter the socialistic and communistic propaganda that is so widely distributed at any ILO meeting

As you can see from the following, the likelihood of any such concerted action is remote indeed

Meetings in Washington

On Oct 17 I wrote Mr Wilkins, Assistant Secretary of Labor, suggesting that, in view of the importance of the forthcoming discussion of the McNair report at the November governing body meeting, it might be desirable to hold a conference on the subject

On Oct 22 I attended such a meeting, at which were present representatives of the Labor, State, and Commerce Departments They asked me what I intended to do at the governing body meeting I told them that above all else I intended to press for an amendment to the ILO constitution, which, if adopted, would exclude communist so-called employers from participation in the ILO I asked them what government intended to do, and they said they did not know

A second meeting was held in Washington on Nov 7 Mr Wilkins was present at this meeting, and also Mr Delaney, U S worker representative on the governing body I restated my position, but urged that government should take the lead in standing on the principle that the integrity of the ILO has been violated and that the constitution should be amended I was told that the government 'felt reluctant' to take such a position, but that as a matter of fact it as yet had no position on the McNair report

November, 1956, Governing Body Meeting

At this meeting discussion of the McNair report overshadowed all other issues The substance of the report (although almost 2,000 pages long) can be summed up as follows Although in some countries employers are in fact government men, and unions merely instruments of government, nevertheless in the interest of universality this situation may as well be accepted

The main importance of the report is that it discloses the growing extent of nationalization of industry in practically every part of the world except the United States

Early in the debate on the report the free employers took definitive action On the basis of facts disclosed in the report they introduced the following resolution, which was in substance identical with a resolution which originally had been proposed by the workers' group at the November, 1954, meeting of the governing body 'The Governing Body decides to place on the agenda of the 1957 Session of the International

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United States Employer Representative to the International Labor Organization Governing Body

Labor Conference the amendment of Article 3, paragraph 5, of the Constitution so as to ensure that worker and employer representatives can only be appointed after nomination by organizations of workers and employers which are free and independent of their governments '

Such an amendment would disqualify communist so-called employer delegations I spoke in support of this resolution Copy of my address is attached hereto (see page 327), and I refer you to that text for a full explanation of the basic issue involved

All 10 employer members stood solidly in favor of the resolution and spoke eloquently on its behalf But we were assailed by a barrage of opposition oratory from the worker and government side, that revealed as never before the hopelessness of the free employer's position in the ILO

The labor-government-socialist majority, now well in control, openly, triumphantly, and even jeeringly displayed their satisfaction in riding roughshod over the free employers and relegating free enterprise to a secondary position in the ILO

We were told that nationalization of industry was on the march the world over, and we must therefore accept communist government agents as employers This argument was advanced chiefly by socialist worker and government members of the governing body, which has only one communist member In supporting the communist cause the socialists were protecting their own right to send government men from nationalized industries to the ILO as employer representatives

As an example of the brotherhood between socialism and communism, it was actually proposed that there should be two classes of employers within the ILO—free employers representing private enterprise, and communist and socialist employers representing nationalized industries This led to speculation as to whether there might be two classes of workers in the ILO—one representing free trade unions, and the other representing government-run unions serving in fact as agents of the state

The only supporter of the free employers was the government of Free China! Here is the vote

For the resolution	
All employer members of the governing body	10
The government of Free China	1
	11
Against the resolution	
All worker members of the governing body	10
All government members except Free China	19
	29

The governing body consists of 20 governments, 10 employers, and 10 workers

Mr Delaney, the U S worker member, said he was in favor of the resolution but was voting against it because he knew it would have no chance of passing The U S government spoke and voted against the resolution

After the defeat of the resolution it was proposed by Mr Delaney that the ILO should set up machinery in the office to investigate further the extent of freedom of association in member countries The proposal was broadened to include investigation of "methods of working" of the conference, including committees, and was then approved by the governing body

All that happened was that upon one investigation, that had lasted a year and a half, there was superimposed another investigation that will drag into years Absolutely nothing was done to resolve the issue involved

Conclusions

The above action dramatized the fact that the tripartite structure of the ILO has long since become a myth Besides government in the government group, we now have government in the employers' group and government in the workers' group The ILO is now to all intents and purposes an international government organization run mainly along political lines under the domination of advocates of collectivism, with free employers possessing no influence of any consequence and serving chiefly as whipping boys for the communists and the socialists

When the views of the free employers of the world no longer carry any appreciable weight in the ILO—when the socialist-communist government and labor majority in the ILO announce that free employers must "coexist' with communist agents in ILO employer committees—when governments invade both the employer and worker groups, and make a mockery of tripartite representation—when further nationalization of industry is openly announced as a desired goal—why should the NAM and the U S Chamber continue to participate in the ILO?

I believe we can accomplish far more outside the organization than we can within it As long as we stay in the ILO, we must carry its label Do we not participate in its meetings and its findings? How can we condemn something of which we are a part? But if we withdrew from the ILO, we could label it for what it is We could explain to the world that we are opposed to the majority philosophy of the ILO, that we do not believe in it, that we stand for free competitive enterprise instead of socialism and communism

Our dramatic action would arouse sufficient interest so that we could tell the story of what has happened to the ILO, and it would be listened to, both at home and abroad We could announce that we proposed to have nothing further to do with a communist-socialist dominated organization devoted to the cause of nationalization of industry

We would be helping the free employers of other countries They are too afraid of their governments, or too committed to personal careers within the ILO to get out of it But we are free We can take an action that they will envy—and perhaps our courage may help them to do likewise

And finally, withdrawal by the NAM and the U S Chamber, on the ground that we will not sit with communist agents as employers, will support the action taken by the Senate of the United States on April 19, 1956, when it passed a resolution denying any increase in ILO appropriations as long as communist delegates allegedly representing employers and workers are allowed to vote in the ILO

The U S government will no doubt press us, as they have before, to stay in the ILO I am not impressed by government arguments Our government has assured me that they fully understand the extremely serious nature of the situation within the ILO, but they do absolutely nothing about it At the governing body meeting, not one single government came forward with a suggestion for a possible solution to the present dilemma Nothing is going to be done unless somebody takes action

Suppose the U S Chamber and the NAM should withdraw, and the government would then appoint an employer delegation from some other source Would that affect us adversely? I think not Our position would be simply that if someone else wants to sit with the communists, it is all right with us—but we do not want to

Recommendation

In view of all of the above, I recommend that, in accordance with resolutions previously passed, and in the light of the fact that there has certainly been no change for the better in the activities and structure of the ILO, the NAM and the U S Chamber no longer participate in the nomination of employer delegations to the ILO

Statement by W L McGrath, United States Employer Delegate in ILO Governing Body, November 20, 1956

I wish to support most emphatically the conclusive arguments presented by Mr Waline on behalf of the proposed amendment to the constitution of the ILO [*] I regard this amendment as essential to reaffirm a principle which has been inherent in the ILO constitution from the very beginning

The constitution states in paragraph 1 of Article 3, that, of the four delegates from each country, 'two shall be government delegates and the two others shall be delegates representing respectively the employers and the work-people of each of the members The constitution then goes on to say in paragraph 5 of Article 3 The members undertake to nominate *non-Government* delegates and advisers chosen in agreement with the industrial organizations, if such organizations exist, which are most representative of employers or work-people as the case may be, in their respective countries

The vital word in that paragraph is non-Government' This paragraph assumes that employer and worker delegates must be nongovernment Taken in conjunction with paragraph 1 of Article 3, there can be no possible doubt that such was the intent of the framers of the ILO constitution

But it was not pinned down in sufficiently definitive language How could the framers of the ILO constitution possibly have foreseen the sorry spectacle of such complete government domination over the affairs of men that in some nations free organizations of employers and workers would be nonexistent and the only voice allowed to speak would be the tyrannical voice of government?

And so, in the June 1954 conference, when the credentials of communist so-called employer and worker delegations were challenged, the constitution was found wanting The majority of the credentials committee claimed and the majority of the conference agreed, that there were no words in the ILO constitution that specifically stated that freedom of domination and control by governments must be a condition of employer and worker representation in the ILO

Gentlemen, that is exactly the point This is a deficiency in the wording of the constitution It is now proposed to correct that deficiency by inserting a paragraph which will specifically spell out what the framers of the constitution intended, and what the constitution as a whole has implied from the very beginning

Let me give you an analogy from the history of the United States The Constitution of the U S A , as originally ratified implied certain rights and freedoms But some of our statesmen said—this is not enough We cannot depend upon implication and interpretation alone We must get these things down in black and white so no one can get around them And so, as you know, we enacted 10 amendments to our Constitution which together are known as our Bill of Rights All these amendments did was to spell out specifically what everyone knew *had been the intent of the Constitution* from the beginning But the effect was an effectual safeguarding of rights and liberties for all time

For example, the United States Constitution as originally drafted implied freedom of religion and of the press But was mere implication sufficient protection? We decided it was not Therefore we added an amendment that states 'Congress shall *make no law respecting an establishment of religion or prohibiting* the free exercise thereof, or abridging the freedom of speech, or of the press Gentlemen, that was not a change It was simply an affirmation of original principles And that is exactly what is proposed in this case

The net effect of the proposed amendment to the ILO constitution is simply that of affirming the principle stated in paragraph 5 *of Article 3, that employer and worker delegates* shall be nongovernment

Let us stick to this basic point and not get involved with specious philosophical arguments having to do with universality —a term which incidentally, I have yet to find in the ILO constitution

What has brought this issue to a head is the brazen endeavor of the communist countries to foist government men upon us as representatives of employers and workers

Is there any doubt as to the facts with respect to this situation? Let me quote just two brief sentences from the opinion of Mr Justice Cornelius included in the McNair report As to unions in communist countries he states It appears clearly that under this system, the trade unions constitute an agency of the government As to directors of industrial undertakings in communist countries, Mr Justice Cornelius states It seems impossible to deny that their relationship with the government is one of direct subordination leaving no scope for freedom of action on their part

The communists have put forward the claim that the functions of managers in industrial undertakings in communist countries are practically identical with the functions of free employers Well, I recently received a copy of the June, 1956 issue of *Industry and Labor* published by the ILO, which contains a summary of the Reorganization of State Industry in Czechoslovakia I quote in part from this report 'The work of each state undertaking is directed by the competent minister in accordance with principles laid down by the government Each minister is required to allocate the tasks outlined in the state plan to the various undertakings administer and supervise their implementation of the plan direct the undertakings wage and capital investment policies and supervise the selection and allocation of supervisory and managerial staff The report then goes on to say that each undertaking has a manager Well what does he manage? I would say that he must manage to do what government tells him to do or else

Have we not had enough of this farce? After what has happened in Hungary, can anybody sustain the claim that there are free associations of workers or employers in communist dominated countries or that their so called employer and worker delegations to the ILO can possibly represent anything but government and the Communist Party?

Gentlemen let us secure the enactment of the proposed amendment, which will reaffirm the long-established structure of this organization By doing so, we are merely confirming the original intent of the framers of the ILO constitution

If, on the other hand, we fail to enact this amendment, we will have allowed the ILO constitution to lapse by default We will have given our consent to a violation of its principles and sacrificed our integrity upon the altar of political expedience We will stand before the world as a prime example of international hypocrisy, and earn the public disrespect which can only be the forerunner of disintegration

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[*] The text is as follows The Governing Body decides to place on the agenda of the 1957 Session of the International Labor Conference the amendment of Article 3 paragraph 5 of the Constitution so as to ensure that worker and employer representatives can only be appointed after nomination by organizations of workers and employers which are free and independent of their governments'

LAW DEPARTMENT

MEDICOLEGAL ABSTRACTS

Prenatal Injuries Liability for Injuries to Embryo of Fetus —This was an action by a child for alleged tortious injuries sustained by her while she was an embryo or fetus in her mother s womb From a judgment for the plaintiff, reversed by the court of appeals, the plaintiff appealed to the Supreme Court of Georgia

The plaintiff contended that she received prenatal injuries when the automobile in which her mother, who at the time was about six weeks pregnant with the plaintiff, was riding was struck by an automobile negligently operated by the defendant The defendant demurred to the complaint on the ground that the plaintiff was not quick in her mother's womb at the time of the accident

The Supreme Court of Georgia pointed out that the statutes of that state give every person tortiously injured a right of action In fact it quoted one of its prior decisions to the effect that, where a child is born after a tortious injury sustained at any period after conception, he has a cause of action While we realize, continued the court, that cases such as this might present extreme difficulties as to proof, we are not concerned with that question here The petition alleges that the plaintiff who is now in life received prenatal injuries, caused by the alleged negligent operation of an automobile in which the plaintiff's mother was riding while pregnant, which resulted in the plaintiff's being born with a deformed right foot, right ankle, and right leg, and in passing upon the demurrer these allegations must be taken as true If a child born after an injury sustained at any period of its prenatal life can prove the effect on it of a tort, it would have a right to recover

Accordingly, the Supreme Court reversed the judgment of the appelate court and found in favor of the plaintiff *Hornbuckle v Plantation Pipe Line Company, 93 S E (2) 727 (Ga , 1956)*

Workmen's Compensation Compensability of Anxiety Neurosis —This was an action for a compensation award based upon an anxiety neurosis alleged to have arisen out of an industrial injury From an adverse decision the defendant appealed to the Supreme Court of Florida

In June, 1953, the claimant was injured in the course of his employment in the defendant s mill The injury, to his right leg, aggravated a condition of varicose veins that he had suffered in both legs for some years A thrombophlebitis that developed in his right leg and extended to his lung (a pulmonary embolus) was successfully treated A year later he was again treated for thrombophlebitis in the right leg, and a ligation of the saphenous vein was performed to prevent another pulmonary embolus In July, 1955, the compensation board found that the claimant was depressed, apathetic, and in constant fear that, if he resumed his usual employment as a millworker, the long periods of standing would cause thrombophlebitis in his left le and another pulmonary embolus therefrom It, therefore, held that the claimant's anxiety neurosis was under these circumstances, a compensable injury O appeal, the defendant contended that the claimant' neurosis was too remote from the injury to sustai an award

The Supreme Court of Florida said that the sol issue was whether or not the claimant was entitle to compensation for a disability caused by an anxiet neurosis When there has been a physical injury, th full disability, including the effects of the neurosis, i compensable It must appear, however, that the neurosis was the direct and immediate result of the industrial injury The casual connection of the neurosi with the accident must not be remote Here, sai the court, the claimant's neurosis did not result directly and immediately from his injury The Commission had reasoned (*a*) that the injury was to claimant' right leg, (*b*) that the thrombophlebitis develope by aggravation of a preexisting disease, (*c*) that th thrombophlebitis resulted in a disease known as pulmonary embolus, (*d*) that this pulmonary embolu resulted in a disease known as an anxiety neurosis The Supreme Court said that the industrial injur could not possibly result in the thing feared (a pulmonary embolus) because the saphenous ligation admittedly will prevent a pulmonary embolus fro developing as a result of a blood clot in his right leg While a court in doubtful cases resolves many doubt in favor of a claimant under the Workmen's Compensation Act, where the claimant's neurotic disabilit is only remotely related to the industrial injury, industry should not be required to bear the cost of th disability Therefore, the ruling in favor of the claimant was reversed *Superior Mill Work v Gabel, 89 So 2d 794 (Fla , 1956)*

Malpractice Hospital's Liability for Nonprofessiona Acts of Its Servants —This was an action for damage for burns alleged to have been caused by the negl gence of the defendant surgeon and the defendan hospital From a judgment in favor of the surgeon bu against the hospital, the hospital appealed to the Supreme Court of Iowa

The plaintiff entered the defendant hospital for a operation on her back, which was to be performed b the defendant surgeon When she was taken to th operating room, she was placed face down on the operating table and "preped' and draped for surgery Whil the 'preping was going on, the surgeon retired to th scrub room to scrub for the operation "Preping refer to the preparation of the skin in the surgical are including shaving, cleansing, and things of that natur The surgeon had the right to determine how plaintif would be "preped,' but he had given no special instructions in this instance and did not know what solutions were used in the final preparation When th surgeon returned to the operating room, he observe nothing objectionable about the "preping" and proceeded with the operation, which took four hour After the operation, a dressing was applied to the sur gical area, and the plaintiff was returned to her room The defendant surgeon did not see her again until the next morning When the surgeon saw the plaintiff the next morning, he expressed surprise as he observed the severe burns on her abdomen He said there had been no explosion during the course of the operation or in his presence, but he gave no explanation as to the cause of the burns The plaintiff tried to find out what happened, but nobody ever told her and no evidence was introduced at the trial to enlighten the court as to what happened According to the nurses' records, doctors expressed the opinion that the blisters were "apparently from ether"

The crux of the case, said the Supreme Court of Iowa, resolves itself around two main issues upon which this court has not previously made pronouncement and upon which there is little authority elsewhere The first issue, stated simply, is whether or not in cases of this nature it is necessary under the doctrine of *res ipsa loquitur* for plaintiff to prove what instrumentality or instrumentalities caused her injury, and the second is what liability a corporate hospital has for the acts or omissions of its officers, employees, or attaches when a patient under anesthesia is injured by lack of due care while in the hospital for treatment or surgery

The doctrine of *res ipsa loquitur*, said the court, is a simple understandable rule of circumstantial evidence with a sound background of common sense and human experience, and difficulty comes only when we attempt to transform it into a rigid formula, which arbitrarily precludes its application in many cases where it is most important that it be applied It is regarded as a presumption, throwing upon the party or parties charged with the duty of producing evidence of the circumstances, to come forth with the evidence, whether culpable or innocent, which is particularly accessible to him or them but inaccessible to the injured person In the instant case the plaintiff placed herself in the care and custody of the defendant surgeon and the hospital employees, and, from the time she lost consciousness until she awakened some nine and one-half hours later, she did not know what instrumentalities were used on her nor how she was injured The injury was of a kind that ordinarily does not occur in the absence of someone's negligence Whether the doctor or the hospital employees were then acting in a professional, semiprofessional, or nonprofessional capacity, she would not know She brought action against the surgeon in charge and properly assumed that, if the injury occurred during the operation proper, by him or his temporary assistants in a professional capacity, he would be liable, but, if the injury occurred while defendant hospital was undertaking to perform other nonprofessional or simple manual acts of an administrative nature through its servants, then, of course, the hospital would be liable It was sufficient that plaintiff disclosed that the injury resulted from an external force applied while she lay unconscious in the hospital, and we conclude that that satisfies the requirement that the plaintiff identify the instrumentality causing her injury It is as clear an identification as such a plaintiff of her own knowledge may ever be able to make, and, under the doctrine of *res ipsa loquitur*, the law should require no more We think, said the court, it is a just and logical conclusion that one who, while undergoing a surgical operation, sustains an unusual injury to a healthy part of her body not within the area of the operation, be not precluded from invoking the doctrine of *res ipsa loquitur* in an action against the doctors and nurses participating in the operation The same thing must be said of the corporate hospital regarding its preceding or subsequent care of the patient This is not altered by the fact that all the parties do not stand in such relation to one another that the acts of one may be regarded as the acts of the other and the injury may have been caused by the separate acts of any one of them, or by the fact that there were several instrumentalities and no showing as to which caused the injury or as to the particular defendant in control of it

The defendant hospital also contended that the 'preping services rendered by the surgeon, nurses, and house physician were professional services, that the defendant hospital could not practice medicine or osteopathy, and that, therefore it could not be responsible for injuries caused by such professional acts The evidence showed that the "preping had been done while the defendant surgeon was out of the operating room getting scrubbed up for the operation We are aware, said the court, that there are cases that hold that 'preping' is considered a part of the operation proper, and in some cases this may well be, especially where special 'preping' is required A careful study of the record in this case, however, fails to reveal that the 'preping done in this case was any more than the 'standard' procedure or simple manual act done by servants or students of the hospital, and, therefore, we do not feel called upon here to decide whether preping generally is in fact the practice of osteopathy and surgery The failure of hospital servants to do any such administrative or simple manual acts with due care would, of course, constitute negligence for which the principal may be held liable under the doctrine of *respondeat superior*, regardless of the servant s title, license, or professional position In the absence of proof that any tasks being performed, with the exception of those of the surgeon, were of a professional nature, they must be found to be administrative Clearly then, continued the Supreme Court, except when employees, regardless of class, were loaned or were engaged in the practice of osteopathy, this defendant hospital determined and directed their duties and made assignments With those exceptions, it had "complete' control over the doctors and nurses employed by it In such cases it seems only just and proper to require satisfactory proof by the master that its servant was not acting as its servant at the time or times in question Although it is true, the court concluded, that the professional discretion of hospital staff doctors cannot be controlled by the nonlicensed corporation, nevertheless even those individuals, while performing nonprofessional functions under the master-servant relationship, will not protect the corporation from liability for its servant s negligence

Other contentions of the defendant hospital were also overruled, and the judgment of the trial court against the hospital was affirmed *Frost v Des Moines Still College of Osteopathy and Surgery, et al*, 79 *N W (2d) 306 (Iowa, 1956)*

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Erosive Gastritis in Cirrhosis Influence of Portal Hypertension on the Gastric Mucosa E D Palmer Am J Digest Dis 2 31-36 (Jan) 1957 [New York]

The importance of acute erosive gastritis lies in the suddenness with which it may lead to exsanguination Among 38 cirrhotic patients with esophageal varices who died while under treatment by the author in the past 6 years as a direct result of hemorrhage, the hemorrhage was found to be originating from erosive gastritis in 4, from gastric or esophageal varices in 30, and from ulcer in the other 4 patients It has been assumed that the mechanical venous back pressure of portal hypertension rather than a circulating metabolite is at fault when erosive gastritis develops in patients with cirrhosis The reasons for this assumption are that there appears to be no correlation between the development of erosive gastritis and the degree of liver insufficiency and that erosive gastritis becomes rare after portal decompression The purpose of the present study was to investigate the histopathology of the gastric mucosa in patients with portal hypertension due to cirrhosis in an effort to determine whether mechanical capillary damage in the mucosa, secondary to venous hypertension, is a proper explanation for the erosive process Histological examination of the canine gastric mucosa after sudden production of portal hypertension by portal vein ligation shows that the increased venous pressure under these artificial conditions is reflected back into the vessels of the mucosa When portal hypertension develops naturally and gradually in cirrhosis of the liver, however, the hypertension is contained within the submucosa and no vascular dilatation develops within the mucosa

Degenerative gastritis with a prominent erosive element, leading to blood loss, is an important complication of cirrhosis with portal hypertension Both gastroscopically and histopathologically the gastritis appears entirely similar to that encountered in patients who have no liver or portal disease The most significant abnormality is necrobiosis of the mucosal neck stratum The blame cannot be placed on interstitial hemorrhage from the mucosal capillaries, nor can mucosal plethora with capillary stasis be considered an etiological factor The presence of venous dilatation in the submucosa suggests the possibility that secondary mucosal hypoxia, due to stasis without mucosal engorgement, might be sufficient, since it is known that the neck stratum is particularly susceptible to the hypoxic influence of ischemia Although this has by no means been proved, it seems a more acceptable explanation than the only reasonable alternative, that of the influence of a noxious circulating metabolite

A Contribution to the Clinical Study of Pigmentary Cirrhosis Report on 31 Cases M Girard, M Plauchu, J Fayolle and R Bastide J med Lyon 38 39 71 (Jan 20) 1957 (In French) [Lyon, France]

The authors report on 31 patients with pigmentary cirrhosis Pains in the right hypochondrium or in the epigastrium were present in most patients Dyspepsia, circulatory disturbances, gastrointestinal hemorrhage, and icteric episodes were neither frequent nor marked Splenomegaly, collateral circulation, and ascites were rare Melanodermia, which is a classic symptom of the disease, was not uniform in its cutaneous distribution or in its color intensity This symptom is latent in most patients and is often overlooked Diabetes that was mild but difficult to control and insulin instability were observed in 12 patients The curve of provoked hyperglycemia showed that some patients did not tolerate glucose More than half of the patients showed no signs of sexual impairment Major disturbances of the sexual organ were rare other endocrine disturbances were rare

Acute heart failure occurred in 2 patients under 50 years of age Latent or mild forms of cardiac insufficiency frequently associated with pigmentary cirrhosis were observed in patients in the "vascular age, only The diagnosis was based on the presence of hypertrophic cirrhosis and cutaneous pigmentation Biological and anatomic tests were given because of the monosymptomatic manifestation of the disease in most patients and because the pigmentation was latent in many cases Biological tests were considered positive only when the iron content of the serum was above 260 mcg Hormonal tests did not prove reliable Laparoscopy was the most frequently used test Needle biopsy was used when all other tests had given equivocal results

Hepatitis as Occupational Disease Among Physicians C Frieberger, M Haider, E Rissel and F Wewalka Wien klin Wchnschr 69 44-47 (Jan 18) 1957 (In German) [Vienna]

A questionnaire was sent to physicians and lawyers in Vienna, Lower Austria, and Burgenland in an attempt to ascertain the incidence of hepatitis in physicians (using the lawyers as controls) and to eval

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The place of publication of the periodicals appears in brackets preceding each abstract

Periodicals on file in the Library of the American Medical Association may be borrowed by members of the Association or its student organization and by individuals in continental United States or Canada who subscribe to its scientific periodicals Requests for periodicals should be addressed Library, American Medical Association Periodical files cover 1948 to date only, and no photoduplication services are available No charge is made to members but the fee for others is 15 cents in stamps for each item Only three periodicals may be borrowed at one time and they must not be kept longer than five days Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order Reprints as a rule are the property of authors and can be obtained for permanent possession only from them uate it with regard to the problem of occupational risks They were asked whether and when they had had jaundice that was not the sequela of gall bladder disease They were also asked about the time of the occurrence of the illness and its duration and whether it occurred simultaneously with active military service during the war Of the physicians, 29 7% had hepatitis after the age of 18 years, as compared to 22 9% of the lawyers An incidence of 16 8% was found among the physicians as compared to 8% among the lawyers, when cases occurring in the course of active military service during the war were excluded An incidence of 23 8% was found among medical specialists who still were working in hospitals when they received the questionnaire, as compared to 15 7% among general practitioners working in their offices and in hospitals

These data suggest that physicians are exposed to an increased occupational risk with regard to hepatitis and that this risk is even greater with hospital work It is emphasized that hepatitis is a reportable occupational disease in Austria and that the incidence of hepatitis exceeds that of other infectious diseases in the course of practicing medicine Prophylaxis of hepatitis has not received enough attention because of the long incubation period of homologous serum jaundice Comprehensive enlightenment of the physicians and the nursing personnel concerning the various possible ways of transmission of the viruses causing hepatitis and concerning the associated occupational risk is *indispensable*

Acute Recurrent Rhabdomyolysis (Paroxysmal Myohæmoglobinuria) A Report of Three Cases and a Review of the Literature D H Bowden, S H Jackson and N F Walker Medicine 35 335 351 (Dec) 1956 [Baltimore]

Although paroxysmal myohemoglobinuria was first described in 1910, only 25 cases have been reported since then, and the authors present observations on 3 additional cases The important data on all 28 patients are summarized The disease occurs in paroxysms that are heralded by muscle pains and weakness, followed shortly by the passing of dark red-brown urine The provisional diagnosis is made by demonstrating a hemoglobin-like pigment in the urine in the absence of hemoglobinemia, but absolute proof of the diagnosis depends on the spectroscopic identification of myohemoglobin in the urine Since the spectroscopic absorption bands of myohemoglobin are similar to those of corpuscular hemoglobin, the differentiation of the 2 pigments formerly required the use of expensive equipment Now a method has been developed that does not require such equipment Studies carried out by the authors indicate that the symptom complex of paroxysmal myohemoglobinuria is the result of a pathological process in striated muscle, and, in conformity with this concept, they propose that the condition be renamed 'acute recurrent rhabdomyolysis' Myohemoglobin is but one of many substances that are released from the muscles into the blood and excreted by the kidney There is no reason to suspect that there is any abnormality in the structure of the myohemoglobin liberated or that this substance is in any way implicated in initiating the attacks The term myohemoglobinuria describes a single feature only and in no way indicates the underlying pathological process

Since the authors observed 3 patients with this supposedly rare disease in the course of 2 years, they believe that it is perhaps more common than the number of reported cases indicates The disease causes widespread muscle damage, but seems to involve only striated muscles There are indications that 2 distinct forms of the disease exist In 1, the attacks are always precipitated by exertion, in the nonexertional type, acute attacks may be associated with a variety of factors or may appear spontaneously Genetic factors may operate, but the exact mode of inheritance has not been established Acute recurrent rhabdomyolysis is a serious disease Repeated attacks are to be expected, there may be residual atrophy of muscles, and the condition is sometimes fatal

Carbon Tetrachloride—An Underrated Hazard G E Joron, C H Hollenberg and E H Bensley Canad M A J 76 173-175 (Feb 1) 1957 [Toronto]

Carbon tetrachloride can produce fatal liver damage, but in the last 15 years it has been shown that the most common lesion in poisoning with this solvent and dry cleaning agent is acute injury to the tubules of the kidney producing acute renal failure or lower nephron nephrosis The terms acute renal failure or acute tubular injury are to be preferred to lower nephron nephrosis Poisoning with carbon tetrachloride may follow its inhalation, ingestion, or absorption through the intact skin Ingestion of alcohol before, during, or soon after exposure greatly increases the likelihood of renal damage The histories of 12 patients with poisoning due to carbon tetrachloride are presented In the first 8 of these, there was exposure to alcohol as well as to carbon tetrachloride, severe renal damage followed in every instance In the remaining 4 patients, there was no ingestion of alcohol and no renal damage None of the 12 patients had serious hepatic involvement

A patient who has been exposed to carbon tetrachloride, particularly if there was concomitant alcohol ingestion, deserves close observation Nausea and vomiting may occur without evidence of involvement of the liver or kidneys Elevation of blood pressure level and back pain suggest renal involvement The early laboratory investigation should include examination of the urine, which in a typical case of acute tubular injury is scanty, has a specific gravity of from 1 010 to 1 015 and contains albumin and many red and white blood cells and casts Under these circumstances azotemia will be present Liver function should be studied by measuring the serum bilirubin and cephalin flocculation or by a similar test

These patients usually respond to conservative therapy and seldom need any form of dialysis However, they should be in a hospital where electrolyte studies can be carried out The principal danger is administration of excessive amounts of water and electrolytes during the phase of oliguria leading to death from pulmonary edema There are hazards in faulty diagnosis and treatment, but the greatest hazard is the lack of awareness of the dangers inherent in the use of carbon tetrachloride The main problem is prevention of exposure Carbon tetrachloride should not be sold without suitable warning labels, and the warnings should be strong enough to discourage its use in the household and small industries In many large industries less toxic compounds now replace carbon tetrachloride as a solvent and dry cleaner

Patients with Hyperglycemia Treated with Thioctic Acid G Schirosa and L Pagliaro Riforma med 71 32-35 (Jan 12) 1957 (In Italian) [Naples]

The authors report on the treatment with thioctic acid of 29 patients with hyperglycemia The drug was given 2 or 3 times a day always before meals, 2 patients received it orally, and the others received it either intramuscularly or intravenously The patients were divided into 2 groups The 1st group (13 patients) was treated with thioctic acid only in doses of from 50 to 70 mg per day The effect was evident on the 2nd day after starting this treatment The 2nd group (16 patients) was treated with from 30 to 60 mg of thioctic acid given daily in addition to insulin The drug had a beneficial effect on the blood sugar level of all patients, those with mild hyperglycemia became normal The combination of thioctic acid with insulin permitted reduction of the dose of insulin in patients with severe hyperglycemia The best results were obtained in patients with marked hepatic deficiency The thioctic acid increases the glycogen synthesis in the liver

Acute Respiratory Disease in University of Wisconsin Students A S Evans New England J Med 256 377-384 (Feb 28) 1957 [Boston]

A study of the records of the department of preventive medicine and student health at the University of Wisconsin revealed that over 2,000 students report yearly to the student clinic—an incidence rate averaging 171 cases per 1,000 students in the 6-year period studied Respiratory infections were the single most important cause of admission to the infirmary, accounting for almost 33% of all admissions The months of highest incidence were January, February, and March Nonbacterial respiratory infections outnumbered bacterial infections by 5 to 1 and were responsible for about 84% of all respiratory illness A diagnosis of infectious mononucleosis was made in 21 5% of all the patients with respiratory diseases

A study of the causation of acute respiratory disease in 290 university students ill enough to be admitted to the infirmary was made with the use of serologic techniques and HeLa-cell cultures for isolation Known infections thus established included adenovirus in 2%, streptococcic tonsillitis and pharingitis in 8 3%, influenza in 3 4%, herpetic infections in 1 3%, bacterial pneumonia in 1 6%, and psittacosis in 0 3% The cause of the respiratory disease thus was unknown in 83 1% of the 290 students A diagnosis of an adenovirus infection could not be made on clinical grounds Viruses of types 1, 3, and 4 were isolated Present evidence does not warrant immunization against adenovirus infections in such university students More data must be obtained for intelligent use of the vaccine in any civilian group Patients with streptococcic throat infections should receive penicillin therapy for 10 days to eradicate the organism and prevent rheumatic fever Antibiotic therapy of nonbacterial pharyngitis and tonsillitis is of no advantage and presents the hazards of toxicity or sensitization to penicillin or both

Symptomatology of Congenital Pulmonary Arteriovenous Fistula F Grosse-Brockhoff, F Loogen and H Vieten Deutsche med Wchnschr 82 134-137 (Jan 25) 1957 (In German) [Stuttgart, Germany]

The authors discuss the symptoms and signs of arteriovenous fistulas of the lung on the basis of observations of 9 patients with the congenital form of this disorder and of 1 patient in whom the fistula was probably of traumatic origin but who had symptoms similar to those of patients with the congenital form The 9 patients with congenital pulmonary arteriovenous fistulas were found among about 2,500 with congenital angiocardiopathies This pulmonary vascular anomaly is associated in some patients with a hardly detectable cyanosis, whereas in other patients the cyanosis is severe Anemia may be observed in some patients either as the result of hemorrhages from the lung or from mucosal telangiectases, and these conditions may obscure the existing cyanosis The great variability in the symptoms is illustrated by the fact that not one of them was present in all 10 patients Foci of increased density in the roentgenogram of the chest in association with the typical murmur caused by the fistula are the most important diagnostic features An erroneous diagnosis of tuberculosis may be made particularly if the fistula is located in the upper part of the lung Conversely, coexistent tuberculosis may make it more difficult to recognize an additional arteriovenous fistula Confusion with tuberculosis may occur whether there is a hemangioma-like anomaly or a well-defined direct fistula between artery and vein Auscultation may reveal no abnormality If the fistula is near the hilus, the roentgenogram of the lung may be normal It is demonstrated on the basis of a case history that in such cases the diagnosis can be established only by catheterization of the heart and by angiocardiography

Bronchial Asthma Treated with Phenylbutazone P Dell'Aera Riforma med 71 97-103 (Jan 26) 1957 (In Italian) [Naples]

The author reports on the results obtained in 3 groups of asthmatic patients treated with phenylbutazone The 1st group was composed of 28 patients with bronchial asthma and emphysema but good cardiovascular condition The 2nd group was composed of 2 patients with asthmatic bronchitis, marked emphysema, and cardiocirculatory insufficiency The 3rd group consisted of 20 patients, most of them young, with allergic asthma All patients received 0 3 Gm of phenylbutazone injected intramuscularly every 12 hours Other antiasthmatic drugs were not given An examination made 3 to 4 months after the treatment showed that the treatment was most beneficial to the patients of the 1st group, 16 patients had recovered completely, 10 had had some attacks but not as severe as those they had had before the treatment, the therapy failed in 2 patients The results obtained in the patients of the 3rd group were satisfactory The therapy had to be discontinued because of intolerance in the patients of the 2nd group Gastric disturbances occurred in 15, suppression of urination with a slight increase of blood sodium and chlorine levels in 3, and kidney disturbances in 5

Confusing the Issue Psychoses as Symptoms of Cancer T H Howell Practitioner 178 233 (Feb) 1957 [London]

Amid the senile and demented elderly patients there are some whose mental symptoms cloak bodily disease and confuse the issue until a postmortem examination establishes the diagnosis A recent series of autopsies revealed a group of patients with cancer whose obvious mental symptoms had only made confusion worse Their histories illustrate some of the peculiar problems in geriatrics The 6 patients whose case histories are briefly presented were all between 80 and 90 years of age Most of them were noncooperative and difficult to examine It is important to realize that in older persons with a new growth mental confusion can be the chief presenting symptom

Alcohol-Induced Pain Due to Carcinoma A H James, H R S Harley, E H Horton and F K Storring Lancet 1 299-301 (Feb 9) 1957 [London]

Although several workers have reported the occurrence of pain after the taking of alcohol in some patients with Hodgkin's disease, this phenomenon does not seem to have been reported in the presence of other neoplasms The authors present the histories of 2 patients with alcohol-induced pain due to carcinoma The 1st patient was a 47-year-old woman first seen in October, 1954 She described attacks of pain behind the upper part of the sternum after taking alcohol The 1st had been at Christmas, 1952, about five minutes after drinking three-quarters of a glass of port After a minute or 2 the pain became severe, and radiated around the root of the neck to the back and down both arms It subsided in about 20 minutes, but soreness persisted until the next day Between that occasion and her attendance at the hospital in October, 1954, she had taken alcohol 5 times, and each drink had caused an attack of pain identical with the 1st Roentgenograms showed a round opacity in the anterosuperior portion of the mediastinum The administration of alcohol by gastric tube or by vein produced the attacks of pain similar to those of which she complained The mediastinum was not explored because the tumor was presumed to be a manifestation of Hodgkin's disease A roentgenogram of the chest in March, 1956, revealed that the tumor was larger and better defined The administration of alcohol at this time (20 ml by stomach tube) caused only slight discomfort Later there was no pain after drinking 80 ml of gin

Uncertainty about the nature of the tumor led to exploration A hard mass was found infiltrating the front of the pericardium as well as the superior mediastinal structures behind the manubrium A globular extension of this mass on each side invaded the anterior margins of the two lungs The extension of the tumor that had invaded the right lung was resected, but the mediastinal part of the mass could not be removed The histological appearances of the tumor varied greatly in the sections examined Follicular collections of small round cells with abortive Hassall's corpuscles suggested that the tumor was of thymic origin as did the appearances at operation That the susceptibility to alcohol-induced pain disappeared while the tumor was enlarging has not been described before

The 2nd patient had been well until 2 months before she was hospitalized At that time she noticed aching across the front of her chest, gradually extending to her back, shoulders, and arms, her whole chest feeling "stiff and taut" These symptoms persisted and became steadily worse About 2 weeks after her pain started she noticed that alcohol, in the form of beer, stout, or wine, increased the severity of the pain For 4 weeks she had preferred to abstain rather than experience the acute exacerbation of pain that alcohol always caused The woman's condition became worse, and she died 13 days after admission Autopsy revealed a tumor infiltrating the pericardial sac and the left main bronchus and areas of growth in the left lung and in the pancreas, the tail of which was undergoing necrosis, small deposits of adenocarcinoma were found in the kidney Before concluding that alcohol-induced pain may occasionally be produced by any type of malignant tissue, the authors make 2 reservations In case 1 the tumor was probably of thymic origin Thomson has suggested that Hodgkin's disease is a disseminated carcinoma of which the primary growth is in the thymus Alcohol-induced pain in a patient with a thymic carcinoma might be held to support this hypothesis The 2nd patient had an adenocarcinoma, probably of pancreatic origin Alcoholism is among the recognized causes of acute pancreatitis

Studies on Anti-V A Recently Discovered Rh Antibody E R Giblet, J Chase and A G Motulsky J Lab & Clin Med 49 433-439 (March) 1957 [St Louis]

The new blood group antibody "anti-V," recently described by DeNatale and co workers (THE JOURNAL 159 247 [Sept 24] 1955) was found in the serum of 2 previously transfused patients The 1st patient was an elderly white man with severe hematuria and anemia His history included a leg amputation 10 years previously, with subsequent complications requiring the transfusion of 22 units of blood, several of which were Rh positive When admitted to hospital he received 8 units of blood, but death occurred rapidly It was because of difficulties observed in cross-matching that his blood was studied His erythrocytes were group A, the Rh genotype was R'r (Cde/cde) His serum contained both anti-D and anti-V The 2nd patient, a young white man with congenital nonspherocytic hemolytic anemia, was found on routine serologic study to have anti-D and anti-V in his serum His sensitization had occurred 12 years previously when he received 10 units of blood after a war injury Blood drawn from this patient was the source of anti-V used for studies concerning the racial distribution of the V antigen and its relation to the Rh blood group system, and for additional studies concerning the incidence, serologic nature, and destructive capacity of anti-V in vivo

Racial studies confirmed the previously reported high incidence of the V antigen in Negroes and its rare occurrence in white persons The antigen was also found to be unusual in orientals (Japanese or Filipinos) and American Indians Further confirmation was obtained for the hypothesis that the V gene is present only in chromosomes with the Rh genes c and e The occurrence of V with cDe is apparently more frequent than with cde The ability of the new blood group antibody to destroy erythrocytes in vivo was shown in the younger of the 2 patients It might, therefore, be responsible for hemolytic transfusion reactions The fact that the 3 examples of anti-V so far discovered—in the patient reported on by DeNatale and in the authors' 2 patients—have occurred in Rh(D)-negative persons is contrary to expectation and would appear to be more than coincidental Assuming that the only factor preventing the possible formation of anti-V is the presence of the V antigen, by far the most numerous candidates for making this antibody should be Rh-positive, V-negative recipients of Rh-positive, V-positive blood No such examples have been found To explain this discrepancy, at least 2 possibilities may be considered First, the V antigen, like C, may rarely cause an antibody response in Rh(D)-positive recipients If this were true, one would expect to find the antibody in those Rh-negative, V-negative persons who had been sensitized by the relatively uncommon blood from an Rh-negative, V-positive donor or by the more common blood from an Rh-positive, V-positive donor, the latter probably was the case in the authors' 2 patients A 2nd possibility is that anti-V has been found in the blood of Rh-positive persons but not recognized as such To reveal the presence of anti-V it would be necessary to absorb the serum with rr (cdef/cdef) V-negative cells, but studies of this type have not yet been carried out

Frequency of Partial Megaloblastic Erythropoiesis in Older Achylic Patients with Slight Anemia Iron, B_{12} and Vitamin C Content in Blood Dimorphic Anemia, Anemia with Multiform Pathogenesis, and Iron Treatment Diagnostic Significance J Pedersen, J Lund, A S Ohlsen and H P Ø Kristiansen Ugesk læger 119 1-14 (Jan 3) 1957 (In Danish) [Copenhagen]

Consecutive examinations in 1955 of the bone marrow in 46 patients, aged at least 50 years, with achylia refractory to histamine, slight anemia but otherwise no certain signs of pernicious anemia revealed beginning or partial megaloblastic erythropoiesis in 7 Comparison of the hematological data in 10 patients with partial megaloblastic erythropoiesis and 10 patients with achylia, total megaloblastic erythropoiesis, and marked anemia showed that, while the iron and vitamin C deficiency seemed to be equally marked in the 2 groups, the vitamin B_{12} deficiency was less in the 1st group The patients in this group seem to represent 2 clinical types, 1 with a beginning pernicious anemia complicated by iron and vitamin C deficiency, the other marked by anemia of other pathogenesis, most often a chronic nephrogenic hemolytic anemia intermittently complicated by toxic-infectious anemia due to medicamental intoxication and colibacteremia Diagnosis of megaloblastic erythropoiesis was made only when megaloblasts of classic type were observed Their appearance can apparently be accelerated by overcoming a present iron deficiency Intensive iron therapy was accordingly applied in cases in which diagnosis was uncertain, and diagnosis of megaloblastic erythropoiesis was made in this way in 3 cases Characteristic changes in the leukopoiesis, including macrometamyelocytes, can sometimes be seen in the marrow when typical megaloblasts are not yet present Examination of the sternal marrow is the most important method for establishing the diagnosis of partial megaloblastic erythropoiesis Treatment with vitamin B_{12}, iron, and vitamin C is beneficial but must be applied intensively, this is particularly true of iron, which must often be given intravenously at the start In uncomplicated cases normal blood values will often not be attained until after 6 months' treatment Iron deficiency in patients with partial megaloblastic erythropoiesis is ascribed not only to reduced resorptive ability but also to insufficient nutrition Presumably, older women with achylia are especially likely to be inadequately nourished

SURGERY

Vagal Resection in Treatment of Duodenal Ulcer A A MacKelvie Brit M J 1 321-323 (Feb 9) 1957 [London]

Of 473 patients (401 male and 72 female) between the ages of 10 and 79 years with duodenal ulcer, 118 underwent vagal resection alone, 332 vagal resection with gastroenterostomy, 19 vagal resection and pyloroplasty, and 4 vagal crush Of the 118 patients, 3 died —1 from anesthesia, 1 from secondary renal carcinoma, and 1 from aneurysm, and 10 were lost to follow-up Twenty-three of the remaining 105 patients required gastroenterostomy for symptoms secondary to vagal resection, such as gross gastric retention, with foul flatulence and diarrhea Six additional patients were awaiting gastroenterostomy Vagal resection alone, although it appeared complete, thus was a failure in 28% of the 105 patients Recurrence of duodenal ulcer occurred in 4 of the remaining 76 patients, and many others had flatulence, diarrhea, and uncomfortable fulness after meals Nine of the 332 whose primary operation consisted of vagal resection and gastroenterostomy died of the operation, an operative mortality of 2 7% Of the remaining 323, 7 died of intercurrent disease unrelated to the operation or ulcer and were free of dyspepsia to the date of death Ten were symptom-free, but they had been followed up for less than 1 year after the operation Eight patients were lost to follow-up Of the remaining 298, 238 (group 1) had no gastric symptoms, 31 (group 2) had very minor symptoms, 8 (group 3) had symptoms that were not preventable but which did not interfere with their activities, 13 (group 4) had symptoms preventing full enjoyment of life, and 8 (group 5) were therapeutic failures The 277 patients in the first 3 groups were well satisfied, they were no longer on a diet, and most of them had returned to their preoperative occupations

The 4 patients in whom vagal crush was done were therapeutic failures Excellent results were obtained in the 14 patients with vagal resection and pyloroplasty Operations on the vagal nerves alone, either by resection or by crushing, do not give good results in patients with duodenal ulcer Excellent results are obtained with vagal resection combined with posterior gastroenterostomy in more than 90% of the patients Equally good results may be obtained by vagal resection combined with pyloroplasty The results are at least as good as those after partial gastrectomy, and the operative mortality is probably appreciably lower These good results, added to the fact that partial gastrectomy is not excluded as a further possible operative treatment for failure in resistant cases, indicate that the combined operation should be the method of first choice in the treatment of patients with duodenal ulcer

Arteriovenous Fistulas in Young Patients with Chronic Obliterating Arteriopathies G Cadili Minerva chir 11 1121-1131 (Nov 30) 1956 (In Italian) [Turin, Italy]

A group of 143 patients with chronic obliterating arteriopathies were subjected to combined operation (gangliectomy, splanchnicectomy, hemiadrenalectomy, and in some arteriectomy) and/or to treatment with a "lytic cocktail," which in many patients made it possible to avoid or postpone operation Four to 8 years after the treatment most of the patients were still well, some had a relapse after from 1 to 3 years, and 13 patients had a relapse with pain more severe than before the treatment after a period of from 1 to 12 months Arteriovenous fistulas were found in the vascular bed of the diseased limb of 9 of these 13 patients High concentration of oxygen was found in the diseased venous trunks Arteriography helped to locate these trunks, but the authors warn that arteriography may give negative results if, because of location, size, and spasm, the contrast medium cannot reach the fistulas The authors believe that the fistulas were the cause of the relapse Hemodynamic alterations that interfered with the nutrition of the peripheral zones were also present Amputation of the diseased limb is the only treatment from which these patients can derive permanent benefits

Emergency Definitive One Stage Surgery for Intestinal Obstruction W H Ferguson and W W Chase M Ann District of Columbia 26 61-67 (Feb) 1957 [Washington, D C]

The authors began to treat acute intestinal obstruction by a 1-stage definitive operation in 1954 and so far have used this method in 45 patients, including 19 with lesions of the small and 26 with lesions of the large intestine They describe the surgical technique for the small intestine and for the ascending and descending colon, pointing out that surgical decompression of the acutely obstructed colon as well as of the small intestine is a safe and necessary procedure In the hands of a skilled surgeon with modern hospital facilities there should be no need for special equipment or training A through-and-through cotton suture produces an anastomosis that is secure and capable of early function in the small as well as in the large intestine

The following are important aids in management attention to the fluid and electrolyte requirements, preoperative sigmoidoscopic examination, ready availability of a barium enema (no barium should be given by mouth if obstruction is suspected), preoperative introduction of a tube for gastric suction, endotracheal anesthesia, if possible, removal of contaminated tissues and instruments from the operative field, avoidance of intestinal spillage into the peritoneal cavity, changing of gloves and drapes after the anastomosis, introduction of neomycin into the intestinal lumen and the peritoneal cavity, use of through-and-through wire suture if there is doubt about the security of the wound, postoperative dilation of the anal sphincter, giving of neomycin through the gastric tube on the day after the operation, and supportive antibiotic therapy After gas is passed by rectum a regular diet can be started Of the 6 deaths that occurred, 5 were due to medical rather than surgical complications The average stay in the hospital were 10 to 11 days, and normal intestinal function was usually present on the third postoperative day The authors believe that a shorter hospital stay and 1 trip to the operating room are far less demanding in both time and risk than multiple procedures

Surgical Treatment of Nontumorous Temporal Lobe Epilepsy J E Paillas and P Pruvot Presse méd 65 197-199 (Feb 2) 1957 (In French) [Paris]

Of 45 patients with psychomotor epilepsy who were subjected to total temporal lobectomy and followed up postoperatively for from 1 to 7 years, 13 made a complete recovery with complete freedom from attacks At least 75% improvement with a decrease in the number and severity of the seizures occurred in 11 patients The remaining 21 were therapeutic failures in that the number of their seizures remained unchanged or that they were improved by less than 75% Of 37 patients who had personality disorders before the operation 18 were improved This applied particularly to patients with violent compulsions while those with delusions of persecution and with ideas of revenge were not benefited Of 8 patients with impotence or frigidity, 2 showed great improvement The encephalograms of 19 patients revealed disappearance of irritative discharges with tracings within normal limits Nonirritative discharges (delta and theta waves) persisted in the electroencephalograms of 10 patients The abnormal tracings in the preoperative encephalograms remained unchanged in the postoperative encephalograms of 16 patients

Of 14 patients in whom the temporal lobe epilepsy was secondary to fetal dystocia, trauma, or otomastoid infections, 5 made a complete recovery, 7 were improved, and only 2 were therapeutic failures These data suggest that a definitely known causative factor may be a valuable aid in prognosis Of 27 patients with a history of grand mal, 14 made a complete recovery or were improved and 13 were therapeutic failures A history of grand mal does not seem to be a definite contraindication to lobectomy Thirteen of the 45 patients had preoperative neurological signs, such as hemiplegia, hemianopsia, or contralateral sensory disturbances, 8 of these 13 patients were therapeutic failures Lobectomy seems, therefore, to be of doubtful value in patients with neurological signs, and a hemispherectomy may be preferable Of the encephalograms of the 45 patients, those of 37 patients showed unilateral seizure discharges and those of 8 patients bilateral seizure discharges Of these 8 patients, 2 underwent bilateral lobectomy and were therapeutic failures Unilateral lobectomy was performed at the site of the most severe abnormality in the other 6 patients, 2 of whom were improved and 4 of whom were failures These data confirm the unfavorable prognosis of surgical treatment of epilepsy associated with bilateral abnormal encephalograms Of 14 patients in whom pneumoencephalography revealed a cerebral atrophy manifested by a dilation or a unilateral ventricular or localized adhesion of the inferior horn, 5 made a complete recovery, 5 were improved, and 4 were therapeutic failures The radiologic detection of anatomic lesions may be of valuable aid in the operative prognosis

Total frontal lobectomy is associated with a minimum of sequelae and has a favorable effect on the seizures and personality disorders in patients with severe psychomotor epilepsy that is refractory to drug therapy Total frontal lobectomy, however, should be performed only in patients carefully selected with the aid of electroencephalography and radiology and according to the clinical appearance The chances for success are best in patients with epilepsy of dystocic or traumatic origin, with a unilateral circumscribed electroencephalographic focus and with radiologic abnormalities that are characteristic of anatomic lesions or of atrophy limited to the temporal lobe

Acute Ileitis with Ulceration and Perforation Due to Paratyphoid Fever Report of Eighty-five Cases J V Conroy Mil Med 120 79-91 (Feb) 1957 [Washington, D C]

Eighty-five of 203 North Korean prisoners of war with ileal perforation or ulceration due to paratyphoid were operated on The mortality rate was 22% for all patients and none for those who had surgical repair within 2 days of their perforation In most patients a resection of the ileum with end-to-end anastomosis was performed Sixty-seven patients had single perforation and 13 multiple perforations of the ileum and 5 had ulceration without perforation The ileum was dilated, thickened, and covered with a brown exudate and with external evidence of peritonitis All ulcers were transverse and on the antimesenteric border Their depth varied from minimal penetration to perforation The number of ulcers was 1 to 9 in a single resected specimen Acute perforation of the ileum and peritonitis are a much more common complication of paratyphoid, than was previously believed It may be the presenting syndrome of the disease Roentgenograms of the abdomen are a valuable aid in the diagnosis Cultures of the blood, ileal ulcers, and stool should be made in all patients to determine, if an enteric pathogen is the causative agent Operation is the treatment of choice for these patients

Osteoradionecrosis of the Mandible J Gaisford and F Rueckert Plast & Reconstruct Surg 18 436-447 (Dec) 1956 [Baltimore]

Necrosis of the mandible after radiation therapy has been a serious and not infrequent complication ever since this form of treatment was introduced at the turn of the century The authors report their experience in the management of 54 patients with this problem in the past 7 years Most observers believe that necrosis of the mandible is produced by a combination of heavy irradiation, infection, and trauma The mandible, because of its ribbonlike shape, compact composition and presence of but a single nutrient artery on each side, is even more susceptible to the effects of irradiation than the other compact bones in the head Radionecrosis of the mandible may result from x-ray treatment through the jaw aimed at a primary lesion elsewhere in the oral cavity, but usually a cancericidal dose of x-ray for a carcinoma of the mandible itself will result in necrosis of the jaw In the early stages of radionecrosis of the mandible there may be only dental symptoms—hypersensitivity of the teeth, continuous dull toothache, and cavities In the late stages symptoms are severe and constant There is probably no lesion about the head and neck that makes a patient as miserable as this condition There is marked trismus, continuous prolonged pain not responding to the usual narcotics, a foul smelling mouth, and, if there is soft tissue necrosis, there may be a draining orocutaneous fistula Patients with this disease usually have difficulty eating because of the pain and inability to open the jaws As a result they are malnourished, sometimes to the point of starvation

Sixteen of the 54 patients were treated conservatively because their conditions were considered inoperable These all died with uncontrolled tumor Seventeen of the 38 patients in whom resection was performed were found to have necrosis only Twenty of 38 patients subjected to resection died 7 as the result of hemorrhage from the carotid artery, 6 from tumor and necrosis, 5 from other unrelated causes, and 2 from necrosis only When last seen 18 of the patients were alive without tumor The longest survival to date is 7 years, the shortest 3 months Radionecrosis of the mandible and of the adjacent skin is a serious complication, and the authors believe that in most cases it could have been prevented Prompt resection of the necrotic mandible and primary closure of the involved tissues offers the best opportunity for a good result Where primary closure is not possible, reconstruction should be by pedicle flaps

Free skin grafts do not do well when placed over heavily irradiated tissues of the face and neck Jaw reconstruction is not considered necessary for most patients operated on for necrosis of the mandible The surgical risk in this type of case should be negligible Even patients with a few months life expectancy are candidates for surgical treatment because of the palliative results

Cancer of Palate Clinical Study J Fairbanks Barbosa and J B da Silva Netto Rev paulista med 49 191-210 (Sept) 1956 (In Portuguese) [São Paulo, Brazil]

Thirty patients of both sexes with cancer of the palate were observed Most of the patients were between the ages of 50 and 60 years The tumors were squamous cell carcinoma in 25 patients and glandular tumors (mixed tumors, cylindromas, or adenocarcinomas) in five A causal factor found in several patients was the callosity formed by a prosthesis The most frequent forms of squamous cell carcinoma were those marked by superficial, destructive, infiltrating, or vegetating ulceration Glandular tumors appeared as submucous nodules that underwent ulceration and malignant degeneration and caused destruction of the skeletal bones and diffused to nearby structures The diagnosis of the size of glandular tumors was made by roentgenographic examination Malignant glandular tumors of the palate followed a rapid course The prognosis, when the tumors reached the retromolar region, the uvula, or the region of the tonsils or when they perforated the palate and invaded the regions of the nasal fossae, the facial sinuses, or the zygomatic fossa, was poor Tuberculous ulceration and malignant granuloma were the main conditions to be ruled out Carcinoma without involvement of the bones and lymphomas were treated with x-rays Those with involvement of the bones and those resistant to roentgenotherapy were excised Glandular tumors were treated by operation followed by roentgenotherapy In the cases reported most of the patients complained of rapid loss of weight Malignant tumors diffused to the alveolar bones in 8 cases, to the tonsillar region in 8, to the nasal fossae and facial sinuses in 2, and to the pharynx in 1 There was no propagation of the tumor in 11 cases Metastases, either unilateral or bilateral, in the cervical lymph nodes occurred in 14 patients Resection of the metastatic lymph nodes was performed in 5 patients Neoplastic nodes were found on histological examination in the resected material of 4 of the 5 patients No conclusions were drawn by the authors because the follow-up period was only 2½ years

The Treatment of Diabetic Arteritis of the Lower Limbs M M Plauchu J méd Lyon 38 113-124 (Feb 5) 1957 (In French) [Lyon, France]

Arteritis is 11 times more frequent in diabetics than in normal persons The frequency is high among patients who have had diabetes for more than 5 years The author found that of a group of 211 diabetic patients 45 had arteritis Arteritis occurred in 10% of those who had had diabetes for less than 5 years, in 10% of those who had had diabetes for 5 to 15 years, and in 40% of those who had had diabetes for more than 15 years No direct relationship between the frequency of arteritis and the fact that the patients had been treated with insulin was found Obesity and superalimentation should be considered only as predisposing factors Of 45 patients with arteritis, 17 were obese and 27 had retinal lesions Latent diabetic arteritis was the most frequent form observed It was located in the upper limbs only in 2 patients Good control of the diabetes, use of iodides, and a diet poor in lipids are advised by the author for the treatment of latent diabetic arteritis Diabetic arteritis not complicated by gangrene may persist for several years Intermittent claudication was the first symptom in 11 of 19 patients with arteritis The authors advise control of the glycosuria and maintenance of a normal blood sugar level Intra-arterial and intrathecal injections are preferred to treatment with vasodilators Physiotherapy should be considered only as a secondary type of treatment Periarterial and lumbar sympathectomy are of some help Seventeen of the 45 patients with arteritis had gangrene Diabetic coma in patients with gangrene is rare, it occurred in only 1 of the 17 patients Lowering the blood sugar level and intra-arterial injections of procaine, heparin, and penicillin constitute the best treatment for patients with gangrene Amputation performed at a sufficiently high point is still the only treatment for patients with massive gangrene In such patients the prognosis is poor

The Plastic Replacement of Severed Flexor Tendons of the Fingers T L Sarkin Brit J Surg 44 232-240 (Nov) 1956 [Bristol, England]

The occurrence of an injury involving the flexor tendons of the finger within the digital theca is a calamity At best the treatment is prolonged and complicated, and many patients never recover a functioning finger The technique that is now generally accepted as giving the most consistently satisfactory results is the transplantation, with a free tendon-graft, of the cut flexor digitorum profundus tendon from the palm of the hand to the distal phalanx, and the complete removal of the flexor digitorum sublimis tendon in this area Free grafting of the profundus tendon requires special skill, experience, and great care Even experts occasionally fail to obtain satisfactory results Other disadvantages of this method are the length of time required for rehabilitation during which supervision and physiotherapy, together with the cooperation and willingness of the patient, are necessary and the fact that the effective treatment of a divided profundus tendon requires the presence of a normally functioning sublimis unit The key to success in tendon repair lies to a large extent in the total avoidance of adhesions around the tendon A technique is described and illustrated in detail whereby severed flexor tendons in the digital theca are replaced by a double length of adequate strength nylon covered by polythene tubing, which is inserted as a functioning unit between the distal phalanx, through which it is passed, and a profundus tendon at the wrist, to which it is firmly sutured, passing through the tendon-sheath en route from the finger to the wrist

The possible disadvantages and difficulties of the technique are discussed, namely the questions of the strength of the plastic and of the junctions between it and the phalanx distally and the tendon proximally and its inertness in the body The evaluation of the late clinical results will require more time The principle of artificial tendons might eventually be extended to the field of tendon transplantations and the rehabilitation of the paralyzed If artificial tendons can function along anatomic pathways, there appears to be no reason why they should not function along artificial pathways Often a tendon transplantation is not practicable due to the anatomic lack of a suitable nearby tendon If this limitation is removed, there is no theoretical reason why a suitable muscle far removed from the paralyzed area should not provide the motor power to that area via a long artificial tendon

Treatment of Angiomas R W O'Brien Plast & Reconstruct Surg 18 448-459 (Dec) 1956 [Baltimore]

The multiplicity of names applied to angiomas has led to confusion, but they may be grouped into 2 broad categories, namely the capillary and the cavernous Capillary hemangiomas include the port-wine stain or nevus flammeus and the strawberry birthmark or hemangioma simplex The cavernous angiomas are soft compressible tumors consisting of large thin-walled sinuses with little intervening stroma They may produce pronounced enlargement of the cheek, nose, ears, lips, and other facial structures and may interfere seriously with function They often produce blue discoloration of the overlying skin, indicating a predominant venous component Phleboliths often develop within them Cirsoid aneurysms are related closely to cavernous angiomas and in fact may be cavernous angiomas with single or multiple arteriovenous fistulas Spontaneous regression occurs frequently but not invariably in hemangioma simplex, but spontaneous regression is not observed in the port-wine and cavernous angiomas The relative ease with which these lesions can be treated in an early stage and the great difficulty of restoring normal or near normal appearance, even after spontaneous regression, when involvement is extensive make it necessary to treat them when they are still small Accordingly, it appears to be highly illogical to adopt an expectant attitude, as some have proposed In addition to progressive growth, these lesions may ulcerate, become infected, and give rise to profuse, and at times fatal, hemorrhage

Except when growth, pressure, or hemorrhage is producing imminent danger, the treatment of these lesions is not an emergency Therefore, it behooves the physician or surgeon never to use a method of treatment that may endanger life or produce greater disfigurement or dysfunction than is likely to result from nontreatment Surgical excision of both capillary and cavernous hemangiomas is being resorted to more and more, as it is safer and produces fewer complications than do other methods of treatment, and it gives satisfactory cosmetic results When irradiation is used, extreme care must be taken in evaluating the dosage Cavernous hemangiomas whose situation and extent render excision inadvisable are best treated by means of injection of sclerosing solutions, by electrocoagulation or by a combination of these methods

Biliary Ileus R Mosimann Helvet chir acta 23 496-512 (Dec) 1956 (In French) [Basel, Switzerland]

Thirteen of more than 200 patients with intestinal obstruction and 450 with gallstones were found at operation to have biliary ileus Three of the 13 died, and 1 required a 2nd operation because of duodenal stenosis Spasm, parietal edema, and localized enteritis were frequent symptoms The latter caused necrosis and intestinal perforation in 1 patient Ten patients had pain in the right hypochondrium Visible calculus in the terminal part of the dilated intestine was the most reliable roentgenologic finding Presence of gas or of some contrast medium in the bile ducts was another significant roentgenologic finding A median incision below and above the navel permitted exploration of the intestine in its entire length Transverse or longitudinal enterotomy was performed and transverse absorbable surgical sutures were placed in 3 layers continuously after clamping of the intestine Palpation of the gallbladder often fails to reveal the calculus because of its close adherence to the liver Great caution is required in making the dissection in order to avoid perforating the intestine or the gallbladder This accident makes cholecystectomy inevitable and greatly aggravates the situation Some biliary-intestinal fistulas close spontaneously and do not cause any more trouble In 1 patient such a fistula caused an intestinal stenosis Laparotomy showed in this patient that a band of adhesions had constricted the lumen of the duodenum Except for one patient who was observed 2 years after the operation, the authors were unable to make roentgenologic examinations to find out what had happened to the fistulas Biliary-intestinal fistulas should be left intact during the 1st operation for biliary ileus and repaired later An exception to this rule should be made only in case of duodenal stenosis or in presence of clinically observable cholangitis

Traumatic Pneumopericardium Case F Rosa and H Coardeza Arch urug med 49 80-90 (July-Aug-Sept) 1956 (In Spanish) [Montevideo, Uruguay]

Traumatic pneumopericardium is rare When pneumopericardium is due to associated lesions of intrathoracic and intraperitoneal structures, the diagnosis is difficult and the prognosis is serious The subject of this report was a child 4-years-old who was brought to the hospital immediately after he had suffered a wound in the chest by a firearm The patient was vomiting food and blood at repeated intervals, but not constantly The clinical symptoms were those of perforation of an abdominal viscus The patient had no shock The roentgenogram of the chest and a lateral teleroentgenogram showed a pneumopericardium as a transparent band of air within the cardiac shadow The operation was done immediately with the patient under general anesthesia It showed wounds in (1) the diaphragm (2) the left posterior lobe of the liver, and (3) the lesser curvature of the stomach The operation consisted of suture of wounds, leaving a peritoneal drain The postoperative course was uneventful, there was rapid recovery without sequels Clinical, roentgen and electrocardiographic follow-up showed permanent cure of the patient

Hemolytic Transfusion Reaction with Fatal Outcome Due to Rare Blood Type Antibody (Anti C) B Barfod and G Munk-Andersen Ugesk læger 119 37-40 (Jan 10) 1957 (In Danish) [Copenhagen]

The fatal hemolytic transfusion reaction reported was due to an Rh undertype antibody, anti-C The presence of another rare blood type antibody of immune character, anti-Jk^a, was demonstrated 1 week after the transfusion The authors discuss performance of compatibility tests that can establish antibodies outside of the ABO system, especially in the case of recipients who have previously been exposed to an immunization either by blood transfusion or by pregnancy As increasing application of transfusions will bring about more frequent immunization of the patients, with consequent increasing risk of transfusion complications, blood transfusions should be prescribed only on well-considered indications

NEUROLOGY & PSYCHIATRY

The Outcome of Patients with Herpes Zoster J M de Moragas and R R Kierland A M A Arch Dermat 75 193-196 (Feb) 1957 [Chicago]

Generally herpes zoster resolves without complication, but in some patients it produces complications or sequelae that may incapacitate the patient The most important among these is postherpetic neuralgia The authors analyze some of the factors that determine the severity of the disease They attempt to outline its natural course and to provide a "base line' useful in determining the results of treatment The records of 916 patients seen at the Mayo Clinic between 1935 and 1949, inclusive, with the diagnosis of herpes zoster or postherpetic neuralgia were reviewed Sex distribution was essentially even Study of the patients was undertaken by groups divided by ages in decades Duration of the postherpetic neuralgia was used as an index of the severity of the process It was found that the incidence of herpes zoster increased with age, from 24 in patients in the age group under 20 years to 270 in patients in their 60's The group aged 70 years or more included 160 patients, absolutely a smaller number but actually larger, considering the relatively smaller percentage of population in this age group

Postherpetic neuralgia likewise showed a relationship to the ages of the patients As the age increased, the number of patients without pain diminished from 83 3% in the age group under 20 years to 8 7% in the age group of 70 years or more Simultaneously, the duration and severity of the postherpetic neuralgia increased Trigeminal location of the herpes zoster was observed in 149 patients (16 3% of the total) The postherpetic neuralgia was of longer duration in this group than in the entire series Also this group was more prone to have severe complications during the acute phase of the disease Enucleation of the eye was done in 2 patients, owing to perforation of the cornea and to absolute glaucoma The different age groups received the same type of treatment during the acute phase of the disease Acetylsalicylic acid, autohemotherapy, and roentgenotherapy were the more widely used To relieve postherpetic neuralgia, roentgenotherapy, cobra venom, posterior pituitary extract, Protamide (a proteolytic enzyme preparation), and vitamin B_1 and B_{12} were given to most of the patients Infiltration of procaine hydrochloride, which was performed in 14 patients, helped 2 Infiltration of alcohol, which was performed in 23, also helped 2 Avulsion of the nerve, which was performed in 6 was of no value Rhizotomy was effective in 3 of 8 patients Treatment of postherpetic neuralgia did not seem to change the slow tendency of the neuralgia to improve with time, but in some instances, fortunately very seldom, the severity of pain was stationary or even progressive Age and localization (trigeminal) seemed to be the decisive factor in the prognosis of herpes zoster

Electroencephalographic Study of a Few Cases of Hepatic Coma R Cloche Presse méd 65 135-137 (Jan 23) 1957 (In French) [Paris]

Electroencephalographic examinations were made in 14 patients with neuropsychiatric symptoms associated with severe hepatic insufficiency Anomalies of a characteristic, ample, and spiking type, presenting a positive component, were observed in 6 patients who were examined during precoma and coma The tracings varied with the degree of unconsciousness An evaluation of the blood ammonia level made during coma in 2 patients showed it to be high No relation was found between this level and the intensity of the coma

Treatment of Mental Illness The Use and Misuse of Sedation and the Seclusion Room H A Wilmer California Med 86 93-98 (Feb) 1957 [San Francisco]

A series of 939 patients admitted to the locked receiving ward in the psychiatric service of the U S Naval Hospital, Oakland, Calif, over a 10-month period, many of them psychotic and in an acute initial episode, was treated with group therapy, which more appropriately should be called a therapeutic community The locked ward contained 34 beds in a single room The concept of the therapeutic community involves free communication among patients, between patients and staff, and among members of the staff The staff was told in the beginning of this experiment that the use of the quiet room would be discontinued and that sleeping pills were to be given only in unusual circumstances A formal sick call was held each morning, followed by a ward group meeting lasting about 45 minutes, at which all patients and staff—nurses and corpsmen—were expected to be present Only 2 of the 939 patients refused to attend the meetings Both were severely paranoid schizophrenic patients who were overwhelmed by fear Immediately after the group meeting, the staff met separately to discuss the meeting and ward and staff problems While the staff was holding its meeting, the patients gathered in a spontaneous group on the ward At first the staff doubted whether the ward could be operated without the use of quiet rooms, restraint, and parenteral sedation Within 2 or 3 months it was obvious that the plan would work and that the best and most humane qualities in staff and patients were brought to the fore

The routines of the ward were group-oriented, but group therapy as such played only a small part Group membership was constantly changing, with an average of 3 patients coming and going every day On the entry of severely sick, new patients, a spontaneous psychodrama was performed As many as 5 or 10 patients were admitted at one time, some in mechanical restraint and many of them after having spent days or weeks in seclusion rooms in other hospitals Only about 8% of the first 250 patients admitted received chlorpromazine and reserpine After 4 months, when it became evident that the social and therapeutic experience of the ward milieu was effective and that its efficacy did not depend on medication, the newer drugs were evaluated At the end of the 10 months 27 6% of the patients were receiving 1 of these drugs They were considered to be of particular help in treating the more aggressive, hyperactive psychotic patients and those with delirium tremens The decline in the use of the quiet room and sedation on the receiving ward, as well as an increase in use of the tranquilizing drugs, coincided with a decrease in use of electroshock and a discontinuance of the use of insulin coma therapy in the hospital Patients who did not require a locked ward were quickly transferred to the open receiving ward which was established 5 months after this program began It was possible to greatly diminish the quantity of sleep-inducing drugs and practically to eliminate the parenteral administration of barbiturates Restraints were never used To be dealt with in this atmosphere of candor and relative freedom seemed to evoke a responsive attitude in the patient, and many of them benefited from it

Dizziness Attacks and Continuous Dizziness in the Aged E J Orma and M Koskenoja Geriatrics 12 92-100 (Feb) 1957 [Minneapolis]

This is a 2nd report on dizziness in a group of patients over 64 years of age, who did not represent a random sample of old people with dizziness because the subjects were solicited through newspaper advertising and included a large number of patients with more severe forms of dizziness than would be the case in a random sample Physical, neurological, otorhinolaryngologic, and ophthalmological examinations, laboratory tests, and roentgenographic studies were made The authors discussed in an earlier report the postural type of disturbance in equilibrium, which is the most common type of dizziness observed in the aged A table listing the type of attack of dizziness in the 45 patients reviewed here shows that the attacks were of central neurological origin in about half of the patients, that is, in 12 they were definitely so and in 10 they were probably of this origin An attack of dizziness was regarded as neurological in origin if other clear neurological symptoms had been associated with it and other causes, especially the otogenous, could be excluded In the remaining 23 patients, the attacks of dizziness were connected with Ménière's disease, chronic otitis media complicated by labyrinthitis, a labyrinthine vascular accident, angina pectoris, cardiac arrhythmias, laryngeal vertigo, infections, poisoning, agoraphobia, vomiting, and head injury

The authors define continuous dizziness as a continuous disturbance in equilibrium independent of movement or position This symptom was observed in only 8 of 112 elderly patients with dizziness Most of the patients of this group were in poor physical condition Many had severe ataxia and tremors and poor mental activity Apparently such continuous dizziness occurs in patients with extensive, diffuse brain lesions, either degenerative or arteriosclerotic

The Response of Normal Men to Lysergic Acid Derivatives (Di- and Meno Ethyl Amides) Correlation of Personality and Drug Reactions J M von Felsinger, L Lasagna and H K Beecher J Clin & Exper Psychopath 17 414-428 (Oct-Dec) 1956 [New York]

Lysergic acid diethylamide was given to 10 healthy men and lysergic acid ethylamide to 9 similar persons after psychological interviews and Rorschach tests in an attempt to increase understanding of the psychological and physiological factors involved in psychotic states by reproducing such states with the aid of these drugs in these volunteers Interviews and Rorschach tests were repeated during the height of the reaction of the volunteers to lysergic acid diethylamide Total doses of lysergic acid diethylamide varied from 39 to 86 mcg, most persons receiving 1 mcg per kilogram of body weight The drug was given orally either in the fasting state or after a light breakfast The total dose of lysergic acid ethylamide was 0 25 mg in 3 persons and 0 5 mg in 6 persons The drug was given subcutaneously Both the drugs were administered as unknowns

The following observations were made in the men who received lysergic acid diethylamide changes in vital signs were of slight moment, giddiness, tremulousness, and paresthesias were frequent, mood changes included, commonly, tension or anxiety and desire to laugh without cause, less frequently euphoria and erotic sensations were encountered, thought and speech processes were slowed down and efficiency impaired, and perceptual changes or visual illusions were produced in half the persons After taking the drug 7 of the 10 volunteers showed distinctive changes in the Rorschach test taking the form of an exaggerated caricature of the predrugged state in which weaknesses of ego function were intensified The degree of change in Rorschach findings and the amount of reaction to the drug were correlated positively with personality disturbances or maladjustment Observations in the men who were given lysergic acid ethylamide were as follows Transient hypertension, tachycardia, tachypnea suggestive of epinephrine release, paresthesias, dizziness, and nausea were frequent Mental changes were predominantly experienced as dulling of the senses, confusion, shakiness, and apprehension Four of the 9 volunteers became mildly hostile and paranoid One other experienced acute panic As with lysergic acid diethylamide, the degree of drug reaction was positively correlated with personal maladjustment

The changes produced by these drugs were not striking conversions of normal to psychotic but rather consistent expansive exaggerations of the predrugged personality in which structural weaknesses and immature factors were magnified In some persons whose personalities are already characterized by pathological signs, such a process may produce a "psychotic" picture The process itself is better viewed as a release of existing tendencies rather than as a creation of new elements Problems of control and design are especially difficult in drug experimentation, not to speak of experimental psychiatry, and the ideal is rarely achieved The use of persons as free as possible of bias, suggestion, and vested interest is essential The use as subjects of members of the laboratory staff, physicians, and nurses may lead to erroneous conclusions

PEDIATRICS

Investigations on Immunity After Vaccination Against Diphtheria and Status of Antidiphtherial Vaccination in Amsterdam Children A L Noordam and A M Schrick Nederl tijdschr geneesk **101** 141-144 (Jan 19) 1957 (In Dutch) [Haarlem, Netherlands]

Immunization against diphtheria has been facilitated since diphtheria toxoid has been combined with aluminum phosphate Investigations carried out on Amsterdam children in 1955 showed that, of the 4-year-old children who entered nursery schools (which are attended by 85% of all children), 57.5% had been immunized against diphtheria, 35 2% had been immunized during the 1st year of life and 22 3% between the 1st and 4th years Of the 6-year-old children, 95% had been immunized against diphtheria Of the 4-year-old children who had had their first 2 injections with alum precipitated toxoid about 4 years previously but who had not had a booster injection since then, 92% had a negative Schick reaction, whereas, of those who had not been vaccinated at all, 20% showed a negative Schick reaction, and all those who had received a booster injection had negative Schick reactions Of the children of primary-school age (6 to 12 years of age), 98% had a negative Schick test About 25% of the antidiphtherial vaccinations in children under 4 years were carried out by the family physicians and 75% by health officers In 1955 health officials immunized about 45% of all babies against diphtheria (and whooping cough), and another 10% of the babies were immunized by their family physicians The authors believe that the propaganda for the immunization of infants against diphtheria should be increased They also recommend that 2 booster injections should be given, the 1st one when the children are between 4 and 5 and the 2nd when they are between 7 and 8 years of age

Clinical and Statistical Correlations in 71 Patients with Tuberculous Meningitis Treated in the Pediatric Clinic of the "Ospedale Maggiore" of Lodi F Brocca and G Sacchetti Riv clin pediat 58 202-212 (Aug) 1956 (In Italian) [Florence, Italy]

The authors report on 71 children with tuberculous meningitis treated between 1947 and 1956 A 1st group of 12 children was treated with streptomycin combined with a sulfone Each child received from 21 60 to 43 35 Gm of streptomycin intramuscularly and from 1 42 to 2 20 Gm intrathecally Three of the 6 children who died were in poor condition on admission Sequelae were not observed, and streptomycin had no toxic effect on the children who recovered The period of hospitalization for the patients who died was from 4 days to 1 month, and for those who recovered it averaged 5½ months A 2nd group of 38 children was treated with streptomycin combined with aminosalicylic acid (PAS) and thiosemicarbazone A total dose of from 15 3 to 64 2 Gm of streptomycin was injected in each child intramuscularly, and from 0 94 to 4 45 Gm was given intrathecally PAS was administered in a dose of from 3 to 6 Gm per day Of 20 children who died 10 had come to the hospital in poor condition The children who recovered were hospitalized for an average period of 5½ months Relapses occurred in 10 children

A 3rd group of 21 children was treated with isoniazid combined with streptomycin Streptomycin was given in a dose of 20 mg per kilogram of body weight daily for 45 days and then at an interval of 3 or 4 days until a total dose of from 40 to 50 Gm was reached Isoniazid was given in a dose of from 10 to 20 mg per kilogram of body weight until the spinal fluid findings returned to normal and then from 1 to 2 mg per kilogram of body weight as long as the condition of the patient required Of 4 children who died, 3 were in poor condition on admission Four and a half months was the average period of hospitalization for the children in this group who recovered Superimposed meningitis or relapses did not occur Sequelae occurred in 2 children The authors believe that the combination of streptomycin and isoniazid provided the best treatment Early diagnosis and treatment are necessary for the best results

Absorption of Iron from Vegetables in Infants Value of Homogenized Preparations A Lambrechts, Y Feuillen and C Hubin Rev med Liege 12 63-65 (Feb 1) 1957 (In French) [Liège, France]

Twenty-two determinations of iron absorption from the diet were carried out in infants between the ages of 5 and 12 months They were given milk that was diluted to one-third and to which sucrose and flour was added They also received soup that was prepared from (1) fresh spinach, boiled and strained (purée), (2) homogenized canned spinach, and (3) fresh spinach, boiled, strained, and treated in a mixer The iron ingested with the combination of milk and soup amounted to 1 or 2 mg daily The total iron was estimated by the o-phenanthrolin colorimetric method after mineralization Results showed that the absorption of iron was definitely better when the infants were fed soup made from homogenized canned spinach than when they were fed that made from boiled and strained fresh spinach The absorption ratio was 12 9% of the ingested amount when fresh spinach treated in the common culinary manner was fed and 32 5% when canned homogenized spinach was fed The absorption of iron from soup made from homogenized canned spinach was almost identical with that from soup made from fresh boiled spinach treated in a mixer Homogenized vegetables constitute an alimentary supply that is appealing to the infant The preparation of vegetables is an important factor that should be considered with regard to iron absorption

THERAPEUTICS

Daptazole and Megimide in Treatment of Acute Barbiturate Intoxications K Madsen Tidsskr norske lægefor 77 60-63 (Jan 15) 1957 (In Norwegian) [Oslo]

Daptazole and Megimide combined were given to 14 patients in the treatment of barbiturate intoxication The most notable effect was increased reflex activity and improved respiration, regarded as certain signs of reduction of the depth of intoxication, so that the patients came into a safe state The patients were closely observed during treatment and awakening The duration of the coma did not seem to be shortened nor did the barbiturates seem to be eliminated more rapidly The side-effects were usually moderate In 1 case paranoid psychosis recurred The motor unrest was, as a rule, easily controlled The agents are regarded as valuable in the treatment of deep intoxications, but they are not to be considered as specific barbiturate antidotes and do not in any way make the usual general therapy superfluous

Diacetylcolchicine in Antiblastic Therapy W Paolino, G Pierri and L Resegotti Minerva med 48 1-10 (Jan 6) 1957 (In Italian) [Turin, Italy]

The authors report the results obtained in 78 patients with different types of neoplasm treated with diacetylcolchicine The drug given intravenously does not cause local vascular reaction and does not depress the general condition of the patient Side-effects caused by tropism of the drug on particular tissues were noticed in some patients, mainly, side-effects appeared in patients with forms of neoplasm that were not much benefited from the administration of the drug Protection of the normal tissues was obtained by giving a small dose of corticotropin intravenously, prednisone by mouth, or adenine intramuscularly The initial dose of diacetylcolchicine was 7 to 10 mg This dose was continued, decreased, or given at longer intervals depending on the form of neoplasm and the occurrence of side-effects The leukocyte count returns to normal after an interruption of treatment for a few days An initial leukocyte count of 3,000 to 4,000 per cubic millimeter was not considered a contraindication to treatment with this drug Daily treatment with large doses of the drug was never continued for more than 10 to 15 days, except in patients with chronic granulocytic leukemia Treatment with a smaller dose (5 mg) given at intervals of one or more days was never continued for more than 20 to 30 days Good renal function is a prerequisite for this treatment Results were excellent and lasting in patients with chronic granulocytic leukemia, excellent but less lasting in patients with reticulosarcoma, good and, in some cases, excellent in patients with malignant lymphogranuloma, good in some patients with lymphosarcoma or pulmonary metastasis due to carcinoma of the breast, and fair in some patients with primitive carcinoma of the lung, in 1 with melanosarcoma, and in 1 with reticuloendotheliosis The drug had no effect on a patient with fibrosarcoma Subjective improvement occurred in 2 patients with carcinoma of the ovary The remission can be maintained by giving a small dose of x-ray and in patients with malignant lymphogranuloma by treating them subsequently with methenamine

The Mass Treatment of Tapeworm with Mepacrine J A McKinnon East African M J 34 15-18 (Jan) 1957 [Nairobi, Kenya Colony, Africa]

During a routine hygiene inspection in the works camp at Marigat in the Baringo district of Kenya, it was noted that many of the stools contained tapeworm segments The investigation and treatment of this Taenia infestation provided an opportunity for the trial of the efficacy and safety of quinacrine (mepacrine) in mass treatment The scheme adopted was designed to provide a measure of laboratory control while the treatment was simplified as would be necessary in mass treatment The population of the camp was divided into groups of 40 persons, and a timetable was drawn up with 1 day devoted to investigation and treatment of each group and, 3 days later, a day for follow-up investigation of that group On the treatment day all men in a group were given a dose of 480 grains (31 7 Gm) of magnesium sulfate on an empty stomach All stool specimens were examined Those that did not contain visible tapeworm segments were examined microscopically for tapeworm ova After that the 494 men (of a total of 1,120 men) whose stools had contained either visible segments (444) or ova (50) were given 0 8 Gm of quinacrine by mouth in 4 equally divided doses at 5-minute intervals, with sips of an antacid mixture to prevent nausea and vomiting between doses One hour after the last dose of quinacrine, 960 grains (63 4 Gm) of magnesium sulfate was given by mouth

Investigations on the 4th day after treatment showed that 42 of the 494 men still had visible segments in their stools and an additional 70 had tapeworm ova on microscopic examination This initial failure rate of 22 67% was higher than expected New tests were made before these men were treated again, and it was found that only 13 had visible segments in their stools and 48 others had tapeworm ova, a total of 61 These patients were re-treated, after which only one man had tapeworm segments and an additional 7 had ova, i e , 8 out of the original 494 treated

Three months after the original treatment the 200 men remaining in the camp from the original 494 men treated were examined Of 170 men who had received only one course of quinacrine, the stools of 4 contained segments and 12 contained ova Of the 30 men who had received 2 courses of quinacrine the stools of 2 contained ova The general failure rate in the 200 was 9% This failure rate and the virtual absence of adverse effects indicate that the use of quinacrine for mass treatment of *taeniasis*, with suitable adjustment of dosage for children and the chronic sick is safe and relatively effective and that by this method it should be possible to reduce tapeworm infestation in a community to negligible proportions

The Importance of the Intradermal Reaction to Penicillin as an Index of Sensitization D Betetto and M Graziani Gior veneto sc med 11 149 159 (May-June) 1956 (In Italian) [Venice, Italy]

The cutaneous reaction was studied in 150 patients who were being treated with penicillin The intra dermal test was made with a solution containing 1,000 units of crystalline penicillin G per cubic centimeter An isotonic sodium chloride solution was used as a solvent The control test was made with an injection of the saline solution alone Twenty patients (13%) were found to be sensitive to penicillin An erythematous zone appeared a few minutes after the intradermal injection in 14 patients, the same plus intense itching occurred in 2 patients, erythema and a positive Prausnitz-Kustner reaction occurred in 4 patients All 20 patients had been previously treated with penicillin, 10 had had a disease considered sensitizing to penicillin, 5 had had bronchial asthma, 3 tonsillitis, 1 trichophytosis, and 1 tuberculous pleurisy Negative results to the intradermal test occurred in the remaining 130 patients, 68 of whom had never been treated with penicillin Seventeen of the 130 had in the past been affected with a disease considered sensitizing to penicillin The authors believe that intradermal tests should be given before subjecting patients to treatment with antibiotics

Myleran in Chronic Myeloid Leukemia Advantage of Systematic Maintenance Treatment J Closon and M Content Rev belge path et med exper 25 413-430 (Nov) 1956 (In French) [Brussels]

Six patients with chronic myeloid leukemia were treated with busulfan (Myleran) Therapy consisted in giving large initial doses (2 to 8 mg daily) for 10 to 22 weeks and maintenance doses of 2 to 6 mg per week for 12 to 16 months The whole treatment was extended over a period from 14 to 21 months with a total dosis of 660 to 950 mg of busulfan Excellent remissions up to 2 years were obtained in 3 patients The antimitotic agent was well tolerated by 5 patients Untoward reactions due to idiosyncrasy and to an acute fatal evolutive phase of the disease occurred in one The chief advantage of busulfan is its efficacy when radiotherapy has been of limited or no value Maintenance therapy requires monthly blood cell counts The advantage of prolonged treatment with busulfan is limited by a progressive resistance of the leukemic cells to the drug In this case, combined treatment with busulfan and x-rays should be given The treatment with busulfan seems to be more effective than x-ray therapy It is, therefore, the treatment of choice in chronic granulocytic leukemia

PATHOLOGY

Investigation of Non Ulcer Dyspepsia by Gastric Biopsy A W Williams, F Edwards, T H C Lewis and N F Coghill Brit M J 1 372-377 (Feb 16) 1957 [London]

The authors consider dyspepsia a condition in which abdominal or thoracic symptoms other than dysphagia occur in relation to eating Nonulcer dyspepsia implies the occurrence of such symptoms when no ulcer can be found in the esophagus, stomach, or duodenum not previously operated on A group of 775 patients with dyspepsia was studied by means of a barium-meal The examination was repeated and gastroscopy was performed when there was doubt about the results Of this group, 459 (59 2%) were men and 316 (40 8%) women Investigation revealed a likely organic cause for the dyspepsia in 307 (39 6%) duodenal ulcer in 195, gastric ulcer in 79, gastric and duodenal ulcers in 7, hiatal hernia in 16, esophageal reflux in 3, gastric carcinoma in 3, cardiospasm in 2, esophageal ulcer in 1, and volvulus of the stomach with eventration of the left side of the diaphragm in 1 Investigating gastritis as a cause of dyspepsia, biopsies of the gastric mucosa were obtained in 200 patients with nonulcer dyspepsia The authors consider several categories of mucosal lesions, and an analysis of the results when multiple specimens were obtained showed agreement between them in 80 to 90% of the cases There was evidence that the greater the number of samples examined the greater the chance of finding atrophic gastritis The mucosa was normal in 45% of these 200 patients There were mild changes—mainly those of chronic gastritis—in 36% (miscellaneous group) and more severe in 4 5% (superficial gastritis) A diagnosis of chronic atrophic gastritis was made in 14 5% of the patients There were no notable differences in the incidence of gastritis between the sexes, but the atrophic type became more frequent as age advanced The milder changes occurred about as frequently at all ages Hydrochloric acid production on histamine stimulation fell away as severity of gastritis increased

Attempt at Anatomopathological Classification of Chronic Pancreatitis Comparison with the Pancreatographic Aspects H Leger and L Leger Presse med 64 2168-2172 (Dec 25) 1956 (In French) [Paris]

Many difficulties are encountered in attempting to define the pathological processes responsible for the lesions found in biopsy specimens obtained from patients with chronic pancreatitis Careful study, however, has shown that, in spite of the varied and often complex changes evident in the slides, a search for the dominant histopathological element will supply information suggesting the cause of the condition and indicating the methods that should be used in attempting to correct it Thus the predominance of ductal dilatation accompanied by gross sclerosis, but with little derangement of the lobules and few changes in the acini, suggests obstruction of the excretory passages and indicates a need for a procedure providing drainage or retrograde decompression Again, the special picture presented by paraneoplastic pancreatitis, with or without ductal dilatation, should lead to a search for the tumor and to wide excision Finally, the topographic distribution of the sclerosis that develops in the course of portal hypertension, chronic endarteritis, and various other conditions produces pictures that are distinctive enough to be easily recognizable, but, even in these cases, such factors as the primary acinic changes, the phenomena of duodenal congestion, spasm of the sphincter of Oddi, and abrupt changes of pressure in the ducts may favor ductal disturbances and distention from above that are also perfectly apparent in the histological specimens and that may be susceptible of improvement by a drainage or bypassing procedure

A distinctive picture generally recognizable in biopsy specimens taken from peripheral zones, but not including the important excretory ducts close to the pancreatic duct, can be drawn up for each of the principal types of chronic pancreatitis Paraneoplastic pancreatitis for instance, is accompanied by many changes, but those that seem to be the most characteristic are the special distribution of the fibrosis that develops between the acini, forcing them more or less widely apart, and the increase in the volume of the acini with cellular hyperplasia or else their tendency to atrophy and destruction These changes are apparently linked as much to the so called desmoplastic properties of the neighboring tumor as to the inflammatory and degenerative phenomena produced by the rupture of the acini, which undergo progressive distention while retaining a certain secretory activity Pancreatography in patients with cancer reflects quite faithfully the dilatation of the principal duct, which is always pronounced, while little change is seen in the smaller ducts—facts that have been noted histologically by others

The term ductal pancreatitis with fibrosis and ectasia is reserved by the authors for the changes produced, principally in the excretory passages, as a result of distention, stasis, or obstruction of any kind other than cancerous The condition referred to as pancreatitis due to obstruction, in which an obstruction to the outflow of pancreatic juice is recognized, sometimes exists in the pure state, but it may also be associated with pancreatitis of a different type, either primary or accompanying hepatic cirrhosis Relapsing pancreatitis is characterized by clearly enlarged interlobular spaces, sometimes presenting a fairly compact fibrous appearance and sometimes loose and edematous with many dilated and congested vessels Dilatation of the excretory ducts and a certain amount of peripheral fibrosis are also found in many cases, but these changes are always subordinate to those produced by vasomotor disturbances Finally, the earliest changes in primary fibrous pancreatitis are those affecting the differentiated acinic cells The fibrosis, which appears as a reparative process only after cellular degeneration, develops at the periphery of the lobules in contact with the cells that are most affected Examples of these changes may be found in pancreatitis accompanying alcoholic cirrhosis of the liver, pigmentary cirrhosis, and anemic syndromes and in chronic fibrous pancreatitis of arterial origin

So Called Xanthomatous Biliary Cirrhosis and Chronic Pseudoxanthomatous Pericholangitis G Hartmann Frankfurt Ztschr Path 68 55-63 (No 1) 1957 (In German) [Munich, Germany]

Xanthomatous biliary cirrhosis is characterized by (1) mechanical (obstructive) jaundice that persists for years, fluctuates only slightly in intensity, and is accompanied and often preceded by pruritus, (2) hepatosplenomegaly with induration, in which the liver surface is at first smooth and later hob-nailed and in which ascites appears either late or not at all, (3) cutaneous xanthomas on the face (particularly the lids), the upper extremities (especially elbows and fingers), the distal parts of the lower extremities, and occasionally also in the axillary and gluteal folds, and (4) severe hyperlipoidemia, in which the cholesterol value is from 4 to 10 times higher and the lecithin value from 4 to 8 times higher than the normal The serum remains transparent because of the rather low neutral-fat content The disease usually ends in death from hepatic insufficiency or from hemorrhage from ruptured esophageal varices It occurs chiefly in women The pathological changes in the liver were thoroughly investigated by MacMahon who characterized the lesion as a pericholangiolitic biliary cirrhosis

The author describes the history of a 50-year-old woman who had had pruritus for several years and who was hospitalized because of the recent development of jaundice Her urine had become dark brown, and the stools were very light Her liver and spleen were enlarged and indurated Because the jaundice suggested obstruction an exploratory laparotomy was performed This revealed a normal gallbladder and no obstruction in the extrahepatic bile ducts Conservative therapy produced no improvement Later the patient had an attack of herpes zoster and hemorrhoids Because the jaundice continued, the patient was again subjected to laparotomy, but the gallbladder and large bile ducts again proved normal A wide cholecystogastrostomy was made A biopsy specimen was taken from the edge of the liver Studies revealed that the pathological substrate of the chronic jaundice was a granulomatous cholangiolitic or pericholangiolitic and partially xanthomatous liver disease Since the bile retention was caused by obstruction of the smallest intrahepatic bile ducts, it is understandable that the cholecystogastrostomy was ineffective and that jaundice persisted Later symptoms appeared that indicated hemorrhagic diathesis

The exact cause of xanthomatous biliary cirrhosis is unknown, but the inflammatory blockage of the junction between the intra-acinary bile capillaries and the interlobular bile ducts may be the key point The granulomatous process there becomes complicated by the simultaneous disturbance in the lipoid metabolism The author does not believe, however, that the disturbance in the lipoid metabolism is the initial factor The histological changes in the liver seem to represent an atypical, cholangiolitic biliary cirrhosis, and only exceptionally, may the process be characterized by transient honeycomb structures in the cholangiolitic granulation tissue The changes in the tissues might then resemble those in lipoid nephrosis First the epithelia of the junction ducts and of the terminal bile ducts become loaded with the flood of lipoids and finally degenerate and adjacent histiocytes absorb the liberated cholesterols so that epithelial and mesenchymal honeycomb cells appear Excessive production and retention of lipoids produce the hyperlipoidemia, and this, in turn causes the deposition of the adventitial histiocytes in various locations, particularly in the skin The fact that the cholesterol metabolism in women is unstable because of endocrine factors, particularly during the menopause, may explain the predisposition of women to xanthomatous biliary cirrhosis As a counterpart to this disease, in which an unknown pathogenetic factor seems to act chiefly in the smallest intrahepatic biliary passages, the author describes the case of a 74-year old woman who had had recurrent attacks of jaundice since the age of 18 In this patient extraordinary proliferations of honeycomb cells were found in the larger interlobular bile ducts The changes in this patient were due to an entirely different process Here there existed chronic, sometimes suppurating intrahepatic cholangitis with pseudoxanthomatous pericholangitis

Alcaligenes Faecalis and Human Pathology A Study of 80 Strains E Enjalbert L Lapchine and Tran-Van-Tho Toulouse med 58 45 60 (Jan) 1957 (In French) [Toulouse France]

Contrary to the general assumption that Alcaligenes faecalis is a normal saprophytic inhabitant of the intestinal tract in man and animals, the authors emphasize that it is an abnormal inhabitant of the intestines in man and that it is associated with various infections Eighty strains of this organism were isolated from the blood, spinal fluid, endobronchial biopsy specimens, pleural fluid, urine, throat smears, and feces of patients with sore throat, meningitis, bronchitis, tuberculosis, cancer of the lung, suppurative conditions, and gastroenteritis The sensitivity of 65 of the 80 strains to antibiotics was tested, 13 strains were resistant to all the common antibiotics, 4 were sensitive to penicillin, 36 to chlortetracycline, 39 to chloramphenicol, 47 to oxytetracycline, and 23 to streptomycin Clinically, chloramphenicol had the most rapid effect A faecalis has been erroneously considered by other workers as a 'contamination" of the examined specimens It is the only one of the Achromobacteriaceae associated with acute generalized infections of the typhoid type and with various localized infections in man Spontaneous recovery occurs frequently, and one should refrain from treating the infection too rapidly and too vigorously Even recovery from the acute meningitis occurs more easily than from meningitis caused by other gram-negative bacteria Localized infections require treatment with an effective antibiotic, but the causative agent is rapidly destroyed when it is reached by the drug The risk of the appearance of more and more dangerous resistant strains after prolonged treatment with antibiotics is less of a threat with A faecalis than with other bacteria such as Proteus and Pseudomonas, and it does not seem that the part played by the antibiotics is a very disturbing one

Dangerous Irregular Blood Type Antibodies Report on Danish Material Comprising 450,000 Blood Specimens J Andersen and G Munk-Andersen Ugesk læger 119 31-37 (Jan 10) 1957 (In Danish) [Copenhagen]

Examination of 450,000 blood specimens, 125,000 of them from pregnant women, for the occurrence of dangerous irregular-blood-type antibodies revealed anti-Rh, antibodies to D, CD, and DE, in 2,007 persons and antibodies to C, E, c, e, f, K, S, Fy^a, and Jk^a in 100 persons On the basis of the frequency of immunization recipients for blood transfusion are divided into 3 categories, (1) especially exposed recipients—persons previously given transfusion and women who have given birth to children with signs of hemolytic disease or whose history is suspect in this regard, (2) less exposed recipients—women who have been or are pregnant but have not born children with signs of hemolytic disease, and (3) ordinary recipients In group 1 the frequency of all immune antibodies is especially high, and these patients should therefore be given transfusion only after an extended compatibility test In group 2, although an extended compatibility test is not so necessary, it should be made In group 3 the classic compatibility test in object glass suffices The practical value of the group classification of recipients depends on how carefully the history of transfusion and pregnancy is taken Persons in whom an irregular immune antibody has previously been established, including anti-Rh, constitute a special group in which blood transfusion should be given only after an extended compatibility test even though it is a matter of donors found to be negative with regard to the blood type characteristic involved

RADIOLOGY

Bone Lesions in Patients with Irradiation Ulcers J Kolár and R Vrabec Strahlentherapie 102 112-125 (No 1) 1957 (In German) [Munich, Germany]

In 34 patients with irradiation ulcers the authors studied the condition of the bones underneath these ulcers In 24 the irradiation had been given for tumors In 5 the irradiation ulcers appeared 3 months after the last irradiation whereas in the others the interval between irradiation and ulceration ranged from 1 to 15 years, averaging about 6½ years In 11 of the patients the bone lesions involved the thorax (ribs or sternum), in 9 the pelvis (mostly the neck of the femur), in 6 the extremities, in 5 the vertebral column, and in 3 the skull Roentgenologic examination does not reveal the serious histological changes, furthermore, as with the skin lesions, the irradiation damage in the bone may progress for years Neither the onset nor the ultimate prognosis of the bone lesion can be ascertained The authors observed the following bone lesions osteoporosis, structural transformation of the substantia spongiosa and corticalis, well-defined or indistinct areas of decreased density, Sudeck's bone atrophy, spontaneous fractures, and necrosis and destruction of bone and cartilage

Factors that differentiate bone lesions produced by irradiation from those resulting from metastasis included localization in the irradiated region and the absence of similar lesions in other bones, slow progression and sometimes a tendency to cure, not taking place spontaneously in metastases, benign nature of the lesion as proved by the fact that of 24 patients in whom tumors were irradiated 18 have so far survived more than 5 years, and the fact that renewed irradiation increases the bone lesion Biopsy furnishes further proof but the authors avoid it because of the risk of infection in the necrotic bone Conservative treatment was used in 5 patients but proved ineffective in 2 In 29 patients plastic repair was carried out, and in 6 of these necrotic bone had to be removed Necrosis in transplanted tissues and wound infections demonstrated that the vitality of the tissue was greatly reduced

Clinical Aspects and Therapy of Melanomas G Miescher Strahlentherapie 102 1-20 (No 1) 1957 (In German) [*Munich, Germany*]

Miescher designates the malignant form of the proliferation of melanoblasts as melanomalignoma, pointing out that this term should replace the terms melanocarcinoma and melanosarcoma In the development of melanomalignomas the precancerous, circumscribed melanomas are important They generally appear as pigmented spots that are characterized by extreme irregularity of contour and pigmentation They may contain not only brown but also gray-brown and blue-black pigments These pigmented spots may appear also on the mucosa Melanomalignomas may develop from them after many years The decision of whether malignancy exists may prove difficult, but it is inadvisable to attempt clarification of the diagnosis with biopsy, because this involves the danger of metastasis

Opinions are still divided about the treatment of the melanomalignomas, some regarding resection and others irradiation as the treatment of choice In the author's series of 98 patients, 74 were still free from metastases when last seen These patients were treated during different periods, and in some the primary treatment was resection and in others irradiation The results obtained indicate that the presence of metastases at the time of treatment is the most important factor in the prognosis Melanomalignomas are curable in a high percentage of cases, provided treatment is started before the development of metastases Neither the surgical nor the radiologic method is necessarily superior, provided either method is carried out appropriately In the treatment of difficult cases, surgeons and radiologists should collaborate Although the treatment of the melanomalignomas is difficult, this is not the case in the precancerous melanotic stage In 37 patients with such lesions the author achieved ideal results with grenz ray therapy

ANESTHESIA

A New Technique of Treatment For Intractable Pain Prefrontal Infiltration with Procaine by Supraorbital Route J Sigwald, D Bouttier, C Piot and others Semaine hôp Paris 33 400-402 (Jan 30) 1957 (In French) [Paris]

The authors used a new technique for the relief of intractable pain in patients with cancer After local anesthesia of the roof of the orbit with a few cubic centimeters of procaine, a trocar containing a pointed stylet was inserted through the upper eyelid at a distance of about 1 cm from the outer canthus and about 5 mm below the orbital arch After the indented point of the trocar had come into contact with the bone, the stylet was pulled back, and a stainless steel bit, firmly fixed to a holder, was introduced into the lumen of the trocar in such a manner that its length did not exceed that of the trocar by more than 2 or 3 mm Thus any risk of severely damaging the substance of the brain was prevented, and the plate of the frontal bone was pierced easily, with the aid of a slightly rotatory movement The bit, then, was pulled back and replaced by a long needle with a blunt end, containing a stylet This trocar was then inserted into the frontal lobe The needle was pulled back and aspiration was performed with the aid of a syringe to make sure that the cerebral ventricles had not been affected In the absence of any ventricular fluid, 10 cc of procaine hydrochloride was injected slowly The entire procedure required 10 minutes and was repeated immediately on the other side

Twenty infiltrations were performed according to this technique with excellent results in 7, satisfactory results in 10, and failures in 3 Among the excellent results was that obtained in a woman with cachexia and cancer of the stomach who had obtained only little relief of pain from 3 daily injections of morphine and who became euphoric after her first infiltration with procaine hydrochloride Pain was completely relieved for 12 months A mild recurrence was controlled with another infiltration, and she survived for a year without suffering Other patients were greatly improved so that morphine injections were required less frequently or morphine treatment could be discontinued completely In most patients, improvement, however, was only temporary and another infiltration became necessary after from 8 to 15 days It was repeated 3 or 4 times before complete failure became apparent Neither mental disturbances or disturbances of character occurred in any of the patients Syncope occurred in 1 patient and apparently was caused by the passage of a few drops of procaine hydrochloride into one of the lateral ventricles Mild headache for several days was observed in a few patients A severe cerebral hemorrhage occurred in 1 patient with cancer of the stomach who was in poor condition on admission The prefrontal infiltration was done with the aid of general anesthesia and displacement of the trocar in the frontal lobe resulted from an inopportune movement The patient became semicomatose after the infiltration and died the next day Autopsy revealed a hematoma the size of a nut in the injected prefrontal lobe

PHYSIOLOGY

Physiology and Toxicology of Tritium in Man E A Pinson and W H Langham J Appl Physiol 10 108-126 (Jan) 1957 [Washington, D C]

Tritium was used as a tracer for hydrogen of mass one (protium) in biological experiments The advantage of tritium over deuterium is that it is radioactive The rate of entry of tritium into the body as water (HTO) and as gaseous hydrogen through the principal routes, the rate and extent of distribution and fixation of tritium in tissues in various parts of the body, and the rate of tritium excretion were studied on the basis of 5 experiments on 3 normal men, for the evaluation of the health hazards to personnel exposed to tritium either chronically or acutely in laboratories or industrial plants HTO absorption through the gastrointestinal tract was complete in 40 to 45 minutes The volume of water transferred from the intestine to the blood was linear with time and proportional to the volume of water ingested within the range of 100 to 1,000 ml When exposed to HTO vapor by inhalation, man absorbed 98 to 99% of the radioactivity inspired

The activity in venous blood increased steeply during and shortly after exposure to the inhalation of tritium Then it declined exponentially to equilibrium with a half time of about 12 minutes The average dilution volume was 62 2% The biological half time of tritium in the body fluid of 8 men on ad libitum water intake averaged 11 5 days HTO was absorbed by man through the skin at a rate comparable to that of insensible perspiration at equal vapor pressures The HTO entering the body through the total skin was about equal to that entering the lungs Man slowly oxidized inspired protium-tritium molecules to HTO The radiation hazard from exchange of tritium with hydrogen of the tissues after exposure to HTO was insignificant compared to the hazard from the amount of HTO necessary to induce appreciable radioactivity in the tissues The maximum permissible concentrations of tritium oxide in air and water was estimated at 5×10^{-6} μc per milliliter and 0 1 μc per milliliter respectively for continuous 24-hour exposure Adoption of the recommendations of the International Commission on Radiological Protection will result in the division of these values by 3 and the maximum permissible body burden of tritium will become about 1 2 mc

The Effect of Adrenaline Infusion on Human Blood Coagulation G D Forwell and G I C Ingram J Physiol 135 371-383 (Feb 15) 1957 [Cambridge, England]

Experiments performed by Cannon and co-workers in anesthetized animals in 1914 revealed a shortening of the clotting time after the administration of epinephrine The main experiments of these workers were repeated by the authors in anesthetized cats and dogs By using Cannon's technique, his observations were confirmed, but the results obtained with this technique could not be reproduced with standard methods It remains, therefore, uncertain what function of clotting Cannon may have measured Of 22 male volunteers in whom clotting times in silicone-coated tubes and direct eosinophil counts were obtained by serial venipuncture at half-hour intervals, 8 drank a solution of 50 Gm of fructose after the 1st venipuncture and 14 received instead 50 Gm of destrose Blood dextrose and fructose concentrations were also determined A correlation between the clotting time and the eosinophil count was observed in these men This suggested that the effect of repeated venipuncture was an important variable in experiments comparing the clotting of consecutive blood samples and that the effect might be assessed by the behavior of the eosinophil count

Twelve control infusions and 13 epinephrine infusions then were given to 9 healthy young medical students who were well-habituated to venipuncture The difference in clotting time between blood samples obtained from venipuncture before and after the infusions of epinephrine was compared with the difference in clotting time between blood samples obtained from consecutive venipunctures spaced at about the same intervals during the control infusions Only after the epinephrine infusion was a significant fall in clotting time demonstrable in the silicone-coated tubes This was not seen in the glass tubes This finding suggested that the fall in clotting time was a real effect of the epinephrine and that the effect of the drug was mediated through the initial stages of clotting not later than the development of intrinsic thromboplastin More detailed studies of the clotting mechanism were made after 7 of the epinephrine infusions, and the results suggested an increase in the activity of clotting factor 5

Observations on a Case of External Pancreatic Fistula in Man I S R Sinclair Brit J Surg 44 250-262 (Nov) 1957 [Bristol, England]

Physiological responses of the pancreas were studied in a 47-year-old man in whom a pancreatic fistula developed after subtotal gastrectomy for duodenal ulcer The daily output of pancreatic juice seems to be greater than has often been taught, 1,500 ml is not considered indicative of pathology The rate of pancreatic secretion fell to levels lower than those previously recorded in man This slight secretion is considered to be mainly the result of continuing stimulation by the vagus The sodium concentration in the pancreatic juice is higher than that in the serum The low estimates of calcium concentration in the pancreatic juice given by some previous workers may be explained on the basis of a technical error in the method of estimation The reciprocal relationships between chloride and bicarbonate concentration were confirmed and some evidence is presented that a similar relationship exists between sodium and potassium ions

Attention is drawn to the dissociation between the volumetric and bicarbonate responses after stimulation of the pancreas In general the responses to various drugs confirmed previous reports, but the effect of prostigmine was variable and in tests of pancreatic function this drug should not be used to stimulate secretion Various pure foodstuffs were tested as stimulants of pancreatic secretion Carbohydrate proved a much more powerful stimulant than either protein or fat Administration of carbohydrate directly into the jejunum resulted in a brisk flow of pancreatic juice Intravenous infusions of carbohydrate or protein hydrolysates did not stimulate pancreatic secretion The absence of a psychic phase of pancreatic secretion in man was confirmed, as was the failure of the broad-spectrum antibiotics to reach the pancreatic juice

Divergent Results in Sex Determination on the Nuclei of Leukocytes and of Oral Epithelial Cells W Kosenow Klin Wchnschr 35 75-76 (Jan 15) 1957 (In German) [Berlin]

Kosenow points out that, whereas at first skin biopsy was resorted to for the determination of the sex chromatin, it is now customary to search for the differentiating sex chromatin in the nuclei of leukocytes and of oral epithelial cells (obtained by means of a spatula from the buccal mucosa) These latter methods are preferred because they obviate the need for biopsy On the other hand these methods represent an additional means of verification In all tests on healthy children the diagnosis 'chromosomal male" and "chromosomal female" corresponded with the true sex Of 15 phenotypically female patients with gonadal dysgenesia, 11 proved to be genetic males and 3 genetic females on the basis of the sex chromatin in the nuclei of the oral epithelial cells as well as of the leukocytes in blood smears

The one exception was an 18½-year-old girl of low stature (32 cm [12½ in] below normal) with hypogenitalism and skeletal changes in the form of osteoporosis, scoliosis, and retarded development of the centers of ossification of the bones of the wrist No ovaries were found at laparotomy In this patient blood specimens (nuclei of leukocytes) were repeatedly examined for the sex chromatin (always by 2 examiners) The quantitative occurrence of the mass of chromatin indicated that this patient was a chromosomal male The results of the search for the sex chromatin in the nuclei of the oral epithelial cells, however, gave a decidedly different result Three investigators examined specimens from the oral mucosa of this patient, counting 200 cells, and found 22, 16, and 25 with chromatin-positive (female) nuclei While these figures are below the averages obtained by other investigators, the authors believe that they indicate a 'chromosomal female" About 10% of the chromatin positive cellular nuclei had not only 1 but 2 chromatin bodies The search for the double sex chromatin was made by 2 investigators both of whom found that 9 or 10 of 100 cells whose nuclei contained the sex chromatin had 2 masses of female sex chromatin The divergent results of the 2 methods in this patient cannot be explained by the authors They believe that this observation demonstrates the importance of always making several tests before making a diagnosis of the chromosomal sex in patients with gonadal dysgenesia They also suggest that studies be made on a larger number of such patients to ascertain whether the observed divergence of test results is due to technical defects or whether different combinations of sex chromosomes or anomalies of the accessory chromosome exist, which might throw more light on such abnormalities

Individual Variations in Expenditure of Energy J Booyens and R A McCance Lancet 1 225-229 (Feb 2) 1957 [London]

It has generally been accepted that variations in individual caloric intakes are due to differences in age, size, and muscular activity at work and recreation, tempered to some extent by the degree of efficiency and training of the subject It has also been shown that in any homogeneous group of adults or children, there are always some who have caloric intakes greatly in excess of those of others and that the differences cannot necessarily be explained by size or observed muscular activity The results of investigations had indicated that differences in the energy expended during lying and sitting might be responsible for large individual variations in caloric intake, and it was suggested that similar differences might underlie the facility with which some people appear to put on weight, whereas others do not The authors checked the findings of other investigators and studied the caloric expenditures of some people who utilize large or small amounts of energy when they are lying, sitting, and standing Their studies were made on 14 women and 22 men, ranging in age from 20 to 57 years Apart from a few science students, all the subjects were attached to the Department of Experimental Medicine and were accustomed to the idea of experimental work, hence psychological influences were largely eliminated The metabolic rates were determined while the subjects were (1) in the basal state, (2) sitting on a comfortable upright chair, and (3) standing Three had rates more than 30% below and 1 a rate of more than 24% above the average for the group for all 3 occupations

The energy balance sheets of these 4 and of 2 other persons were investigated for 7 or 14 days The intake was measured by weighing the food and the output by a time-and-motion study, combined with measurements at the important occupations It was concluded that (1) the limits usually accepted for the normal basal rates are too narrow and (2) an unusual rate for lying, sitting, and standing may make a great difference to the total daily expenditure of energy, but (3) although a small expenditure at these 3 occupations may lead to a small energy requirement, it does not necessarily lead to obesity or even to a tendency to put on weight It was thought at the outset of this study that if persons were found with exceptionally low metabolic rates lying, sitting, and standing they might all tend to be fat and have trouble in keeping their weight within normal bounds Two subjects were found to have this trouble, but 2 others were both exceptionally thin and did not have to worry about the food they ate in spite of their low metabolic rates One man who had a high metabolic rate while lying, sitting, and standing was large and maintained his weight easily Another subject was a woman of normal proportions These masked variations in expenditures of energy explain well enough why some people require few calories to maintain their weight and others twice as many, but there is nothing to suggest that they play any part in the fundamental control of appetite This problem remains to be solved 'The food served in the society in which we live and the food eaten by habit and convention are adjusted unconsciously to suit the person who is average in all respects Persons with low expenditures of energy, whether obvious or masked, can only maintain or retain an average weight if they stop eating the strictly conventional amounts of food

PUBLIC HEALTH

Study of Antipoliomyelitis Antibodies in Children and Young Adults in the Canton of Vaud B Baudiez, V Bonifas, C Piguet and C Wild Schweiz med Wchnschr 87 77-81 (Jan 26) 1957 (In French) [Basel, Switzerland]

In the spring of 1955, the health authorities of the canton of Vaud undertook a preliminary immunological investigation designed to facilitate the choice of candidates for antipoliomyelitis vaccination The presence or absence of the 3 types of antipoliomyelitis antibodies was investigated in (1) school children, aged 7 or 8, (2) school children, aged 11 or 12, and (3) normal-school students, aged 18 or 19 Groups 1 and 2 were subdivided into rural and urban subgroups The percentage of children in the 7-to 8-year age group with antibodies of at least 1 type was significantly higher among the rural than it was among the urban children, 76% as compared with 61% A significant difference was also found between the town and the country children in regard to the number of those in the 7 to 8-year age group with both type 1 and type 3 antibodies In the 11-to-12-year age group, the difference was no longer significant

Infection with 1 type of poliomyelitis virus is known to produce specific antibodies capable of neutralizing, in vitro, only that particular type of virus The findings in clinical cases, however, suggest that there is a certain degree of cross protection so that an earlier infection with a type 2 virus provides some protection against the paralysis caused by a type 1 infection The percentages of persons immunized against all 3 types of virus in this study were 4 2% for children aged 7 or 8, 14% for children aged 11 or 12, and 6% for young adults aged 18 or 19 Analysis of the distribution of antibodies in relation to age showed that in the 11-to-12-year and 18-to-19-year age groups, 1 in every 5 inhabitants of the canton possessed no antipoliomyelitis antibodies and so ran the risk of contracting poliomyelitis in case of exposure to the virus Since the relation between clinically manifest poliomyelitis and inapparent cases in persons exposed for the first time to the virus increases with age, it follows that the danger of contracting paralytic poliomyelitis increases between the ages of 12 and 18 The serologic findings in this series support the endemoepidemiologic observations in the canton in recent years in which almost as many cases of paralytic poliomyelitis have been found in adults as in children

The study of serologic immunity shows that a certain number of the persons in a population are not protected against poliomyelitis A population normally lives in a state of equilibrium in relation to the poliomyelitis viruses, with only a small proportion of the nonimmune persons contracting the disease The equilibrium, however, may be disturbed so that from time to time the incidence of the disease rises, although the distribution of cases by age groups remains unchanged Antipoliomyelitis vaccination is indicated as a matter of principle because the conditions that may lead to an increase in the incidence of the disease are not subject to control, and the findings in this study suggest that young children, because they are the most susceptible to infection, should be the first to be vaccinated

Ethnic Differences in the Incidence of Leukemia B MacMahon and E K Koller Blood 12 1-10 (Jan) 1957 [New York]

That leukemia is recorded as cause of death less frequently among American Negroes than among white persons has been well authenticated The authors made an attempt to estimate the incidence of leukemia in relation to religion and country of birth, using data collected from clinical records and death certificates in Brooklyn A series of 1,636 white patients in whom leukemia was diagnosed in the period 1943-1952 is compared with selected census data for the population The incidence of leukemia in the native population of Brooklyn was 45 3 and in the foreign-born population 61 0 per million per annum The large proportion of Russian-born persons in the population seems to account for the higher rate in the foreign-born group Catholic and Protestant groups did not show any difference in susceptibility to this disease United States vital statistics show that the commonly observed difference in leukemia death rates between white persons and Negroes is associated with social differences between the 2 groups Little or no difference in leukemia death rate was seen between these 2 groups in Brooklyn

BOOK REVIEWS

Wire Brush Surgery in the Treatment of Certain Cosmetic Defects and Diseases of the Skin. By James W. Burk, Jr., M.S., M.D., Associate Professor of Clinical Medicine (Dermatology), Tulane University of Louisiana, School of Medicine, New Orleans. Publication number 300, American Lecture Series, monograph in Bannerstone Division of American Lectures in Dermatology. Edited by Arthur C. Curtis, M.D., Chairman, Department of Dermatology and Syphilology, University of Michigan Medical School, Ann Arbor. Cloth. $6.75. Pp. 154, with 68 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1956.

This monograph presents an inclusive, well-illustrated, and readable summary of the current status of dermabrasion for scarring and other skin changes, with particular reference to scarring following acne. The author has summarized the literature on the subject adequately, and has written his book from a background of personal experience. There is a digest of the anatomic and histopathological principles that bear on the procedure and a detailed outline of the equipment and supplies required, the comparative virtues of ethyl chloride and Freon 114 for producing freezing and local anesthesia, the techniques of the method, postoperative management, complications, indications, and contraindications.

The essential procedures and instruments for carrying out dermabrasion were described in several publications by Kromayer in Germany, in 1905. Curiously enough, his methods appear to have received little or no trial in the United States until the reintroduction of the sand-papering technique in the mid-1940's. This technique had a number of disadvantages, one of the most serious of which was the formation of silica granulomas in the abraded area. The late Dr. Abner Kurtin of New York repopularized and refined the method of dermabrasion, and must be credited with the development of the technique as it is used today by dermatologists and plastic surgeons. From its original restriction to the treatment of scars from acne, chickenpox, or trauma, and attempts at removal of tattoo marks, the method has been widely extended to include treatment of various benign epidermal tumors, rhinophyma, and many of the excrescences and other morphologic changes of aging.

On the basis of thousands of cases of acne scarring treated by this method since 1953, there can be no doubt that significant cosmetic improvement can be obtained in well-selected cases, and that the risks are relatively small in the hands of competent operators. The human skin, fortunately, is endowed with extraordinary self-reparative powers. Because the epidermal pegs extend deeply into the skin in most areas, the epidermis is capable of regrowing after vigorous abrasion, even to the point of exposure of small islands of subcutaneous tissue. If it is then let alone, and does not become infected or undergo hypertrophic scarring, the surface of the regenerated skin looks better than it did before.

The author is well aware of dangers of overenthusiasm in any surgical procedure undertaken to remedy a cosmetic defect. However, the risks of the method are so small and the improvement so definite as to justify its use in patients who have significant scarring following acne or some other inflammatory process. There can also be little objection to the use of the method in obviously benign epidermal tumors such as seborrheic keratoses. In the case of tattoo marks, in which the pigment is subepidermal, the method is far less successful. Its use in improving the wrinkling of age and in removing freckles and other melanin pigmentary deposits should be approached with great caution. In the case of pigmented nevi, the author states that, "with the exception of obviously benign non-pigmented nevi, a punch biopsy should precede planing." The only difficulty with this concept is that the gross criteria for recognition of nevi of junction type, either inactive or active, are still not as clearly defined as they might be. It is reassuring that no undetected melanomas have been reported after the use of this method, but certainly it cannot be regarded as an acceptable method of removal of pigmented nevi. As a commentary on the bacteria-laden environment of hospitals, the author reports that the two instances of postoperative infection he encountered occurred in hospitalized patients. He regards outpatient treatment as preferable. This is a balanced and informative book.

Chronic Illness in the United States. Volume II. Care of the Long-Term Patient. By Commission on Chronic Illness. Cloth. $8.50. Pp. 606, with illustrations. Published for Commonwealth Fund by Harvard University Press, Cambridge 38, Mass.; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, England, 1956.

This is the second volume in a series of four reports by the Commission on Chronic Illness. The Commission is sponsored by the American Hospital Association, the American Medical Association, the American Public Health Association, and the American Public Welfare Association. Thirty-nine other national organizations in the health field participated in the 1954 conference, the conclusions of which are the basis for the observations and recommendations appearing in this volume. The book's eight chapters deal with the long-term patient, the patient at home, rehabilitation at home and in institutions, the patient in an institution, personnel and education, coordination and integration, research for planning and administration, and financing. Seven appendixes deal with special phases of the general subject.

The "long-term patient" needs definition. Not all who are afflicted with chronic disease need constant or regular medical care. As defined by the Commission, a long-term patient is one suffering from chronic

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

disease or impairment, who requires a long period of care for a continuous period of at least 30 days in hospital or three months in an institution or at home and who requires medical supervision It is estimated that there was possibly an average of 5,300,000 persons who were disabled for longer than three months in 1950 These persons constituted 3 5% of the total population Of these, about 4,200,000 were at home, and 2,120,000 were 65 or older It would be beneficial to know how many of these could be rehabilitated to the point of reasonable self-sufficiency The patient should be able to provide himself with the basic needs of food, shelter, and clothing Those who can reach this level of self-sufficiency will give the greatest reward for the cost and effort involved

On the other extreme we number those whose condition is irreversible For these, mostly psychotic, paralyzed, arthritic, tuberculous, deaf, blind, or feeble minded, domiciliary care under institutional supervision seems the best that can be done The Commission discusses what should constitute minimal acceptable care and attention and applies this ideal as the minimum for everyone One can agree to this ideal while questioning its practicability To build and equip the facilities and to train the nurses and 35 kinds of technical personnel required—the services of one or more of which will be needed during the course of chronic illness—is beyond the fiscal capacity of private charity or the taxpayer Taxes from local, state, and federal governments already take about 33% of earnings The only reference to a fiscal plan to implement the Commission's recommendations appears on page 441 (paragraph 69-b)

> Until the time when the needs of all long term patients are adequately met under plans and programs listed here, there is no alternative to the basic proposition that society as a whole through taxation must meet the deficit and fill the gap Funds for this purpose should be provided by local, state and federal taxation Medical care of the long term patient currently is financed in a variety of ways through direct personal financing, voluntary health insurance, philanthropic agencies, workmen s compensation, non occupational disability insurance, industrial medical care programs and tax funds

The authors are to be commended for their thorough explanation of the many factors involved They have defined long-term patients and subdivided this group according to dominant causative characteristics This breakdown indicates which of these persons can be rehabilitated in whole or in part They are the ones for whom the expenditure of more funds can be justified from the standpoint of economy The long-term patient who can be returned to productive living ceases to be a long-term expense

Biochemical Individuality The Basis for the Genetotrophic Concept By Roger J Williams, Professor of Chemistry, Director Biochemical Institute University of Texas Austin Cloth $5 75 Pp 214, with 17 illustrations John Wiley & Sons, Inc , 440 Fourth Ave New York 16 Chapman & Hall, Ltd , 37-39 Essex St , Strand, London, W C 2, England, 1956

In this volume the author stresses the importance of the uniqueness of the individual as opposed to the similarity between individuals If one considers the wide variations existing in many clinical values in the so-called normal person, it becomes readily apparent that, when extremes are persistent in normal persons, these individuals differ profoundly even though clinical values are within the normal Such differences are not surprising when one considers the numerous enzymatic reactions controlling body functions and the results when several of these reactions are functioning other than optimally

The first two chapters may be considered introductory, in that the author establishes the significance of biochemical variation and the basis for biochemical individuality The next eight chapters point out areas of existing individuality in anatomy, chemical composition of the body, enzyme patterns, endocrine activity, excretion patterns, drug response, and nutrition The latter area includes a discussion on the amounts of inorganic and organic constituents present in the body and the quantities of each required by individuals A single chapter containing a miscellaneous group of areas of individuality is also included In chapter 11 the author explains the genetotrophic concept as based on biochemical individuality The principle simply stated by the author is "Every individual organism that has a distinctive genetic background has distinctive nutritional needs which must be met for optimal well-being " The final three chapters contain ideas with respect to the implications this concept has in the biological sciences, medicine, dentistry, and psychiatry The book makes interesting reading because of the freshness of the concept it contains and the immense areas it opens in both fundamental and applied research It contains pertinent technical references at the end of each chapter and a general subject index

Training of the Lower Extremity Amputee By Donald Kerr B B A , Director, National Institute for Amputee Rehabilitation Lodi N J , and Signe Brunnstrom, M A Consultant in Amputee Training, Institute of Physical Medicine and Rehabilitation, New York University–Bellevue Medical Center, New York Introduction by T Campbell Thompson, M D Cloth $6 50 Pp 272, with 153 illustrations Charles C Thomas, Publisher, 301-327 E Lawrence Ave Springfield, Ill , Blackwell Scientific Publications Ltd , 24-25 Broad St , Oxford, England, Ryerson Press, 299 Queen St , W , Toronto 2B, Canada, 1956

Donald Kerr, himself an above-knee, lower extremity amputee, and the co-author state that their reasons for preparing this book were to inform the surgeon about rehabilitation of the amputee, to inform the nurse on stump care, to give the physical therapist a program of preprosthetic care and techniques for training the amputee, to inform the limb maker about stump care and training techniques, and to instruct the amputee in preprosthetic care, selection and testing of the prosthesis, and exercises in its use The book is well illustrated Its 12 chapters are entitled (1) Adjusting to the Amputation, (2) Pre-prosthetic Period, (3) Lower Extremity Prostheses, (4) Stump Socks and Dressing Hints, (5) The Single Above-Knee Amputee Training, (6) The Single Above-Knee Amputee Walking, (7) The Single Above-Knee Amputee Daily Activities, (8) The 'Tilting Table" Amputee Training Methods, (9) The Single and Double Below-Knee Amputee Training Methods, (10) The Double (One Above and One Below-Knee) Amputee Training Methods, (11) The Double Above-Knee Amputee Training Methods, and (12) Social Dancing and level is within normal limits, thyroid therapy is not indicated If, however, the blood cholesterol level is high and the protein-bound iodine level is low, thyroid in proper doses to bring the basal metabolism rate to normal may be indicated Weight reduction should assist greatly in returning the blood pressure toward normal Use of the various types of ganglionic blocking agents, such as pentolinium and hexamethonium compounds, should be reserved and employed only if weight reduction and other measures are not successful in bringing down blood pressure

X-ray study of the skull to rule out possible lesion in the hypothalamus or pituitary region should be done Emphasis should be placed upon providing an attractive and prolonged weight-reduction program through dieting Lean meat and other protein foods should be taken in fairly generous amounts Bulky foods, such as salads, fruits, and vegetables, should be provided generously Sweets, starches, and fats, in general will have to be greatly curtailed Bread, preferably as whole wheat bread, one slice at a meal is allowed A multiple vitamin capsule will insure adequate vitamin intake Psychological factors should be investigated Frequently the cause of excessive caloric intake over a long period of time is psychological Pleasure in eating may become a dominant personality trait and may serve as a substitute when social, business, or sexual desires are unsatisfied Obesity itself may be used as a weapon against undesired demands of work, family, or community Corpulence may serve as a guard against frustrations resulting from loss of physical attractiveness and efficiency Problem children often become obese and use the condition to demand special attention In a great majority of cases of obesity both physiological and psychological abnormalities are factors in causation of the obese condition Individual study in each case is necessary to discover the causes, which are usually multiple

ALLERGIC DERMATITIS IN A MEAT PACKER

To the Editor —*A 32-year-old woman who has been wrapping meat for five years in a chain grocery developed an eczematoid dermatitis, obviously of an allergic nature, on the ventral surface of both arms (she works in a short-sleeved uniform) and on the neck and upper part of the thorax The eruption is macular and bright reddish at its height, on one occasion it progressed to a weeping stage Antihistamines and cortisone cause prompt remissions, but when she returns to work the process begins again after about one week Itching is present The wrapping of meat entails the use of cellophane paper When the paper is folded around the meat and creased, the operator irons it with a hot iron This produces a sealing of the paper and also produces a smoke that envelopes the operator Incidentally, there is an almost constant sore throat" Is this patient reacting to the fumes produced by this process on these papers?*

Benjamin L Camp, M D, Atlanta, Ga

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —It is impossible to diagnose a dermatitis from a description and a history However, the concept that the dermatitis in this patient might be due to an external contact seems reasonable Furthermore, the idea that it might be due to exposure to a chemical or a fume is suggested by the distribution of the eruption and the history of exacerbations on return to work However, to establish the cause, patch tests would be necessary Contact dermatitis is not common in meat wrappers Eruptions due to cellophane are also unusual Cellophane is used in performing patch tests because it is nonirritating It is desirable to have a clear area, free from dermatitis, between the tape, which is so often irritating, and the tested substance Cellophane is ideal for this purpose Reports of cellophane toxicity could not be found in the available literature, except that Hunter (Diseases of Occupations, Boston, Little, Brown & Company, 1955) quotes an inconclusive personal communication from Flinn (1943), who claimed to have produced paralysis of the wings and legs of domestic fowl fed cellophane for 28 days Schwartz, Tulipan, and Peck (Occupational Diseases of Skin, ed 2, Philadelphia, Lea & Febiger, 1947, p 525) state that industrial dermatitis does not occur in cellophane workers It must be admitted that sensitization could develop to the fumes emanating from the heated cellophane However, the physician must consider other possible causes, such as plants, insecticides, other chemicals, detergents and photosensitization Despite the suggestive history, the actual cause may have nothing to do with her task of wrapping meat Other substances in her vicinity or agents contacted away from work might be at fault Therefore, it must be reiterated that careful patch test studies on this patient to determine the exact cause is imperative before a definite decision can be rendered If patch tests with the cellophane used in her work are negative at normal temperatures, controlled exposure to the fumes should be attempted It might be worth mentioning that this consultant has seen a similar case in which the actual cause was found to be sensitivity to external contact with beef Another possibility to be considered would be that the patient is not using cellophane but is exposed to another similar product containing sensitizing chemicals This should be checked with the manufacturer

Answer —It may be doubted that cellophane itself may be the source of the conditions described There is the remote prospect that some plasticizer or moisture-proof agent when added could induce the affections This must be tested through the application of appropriately applied closed skin patch tests In some such tests, when allergy is suspected, the material should be kept in place for longer than customary periods and up to 96 hours This being true, several samples of the mentioned materials should be applied in order that one may be removed at the end of 8, 24, 48, and 96 hours The test materials should include cellophanes as such, but other tests should make use of the same items applied promptly after more heating than is required in the work operation Likewise, these samples should be removed at different periods up to 96 hours unless earlier-removed patches indicate positive responses. Wholly negative results should go far in exculpating cellophane as the ffender. A common source of dermatitis in butchers, nd notably fish butchers, is the erysipeloid organism Erysipelothrix rhusiopathiae. The cleaning agents utilized around meat blocks and counters are a more likely source of dermatitis than cellophane.

PREGNANCY IN PRESENCE OF MYOMAS

To the Editor.—*A 32-year-old married woman has been having intermittent functional bleeding for the past six months. This has been somewhat worse lately. A careful dilatation and curettage was done five months ago, and a cervical polypus was removed. The patient has multiple small fibroid tumors of the uterus that can be palpated through the abdominal wall. She has a mild mastitis, especially in the left breast, which is sore around her menstrual time. She has been married only a short time, and she wishes to have children. Should the patient be allowed to become pregnant, or should a hysterectomy be done, with complete removal of the fibroid tumors? Although the tumors are small, there is still the problem of functional bleeding. A roentgenologist strongly advises against x-ray therapy in view of recent knowledge of the possibility of mutations in the second generation.*

Hamlin B. Lindsay, M.D., Washington, Ind.

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—The patient poses several different problems, and additional information would be of value. It would be well to know how long she has been married and the histology of the specimens removed by curettage. The chief problem seems to be uterine bleeding and the question of fertility is unanswered. It is to be hoped that the patient might get pregnant without operation, and she could probably go to term. Any operation undertaken should have as its objective the possible relief of bleeding, without interfering with the possibility of pregnancy. The possibility of myomectomy immediately suggests itself if the bleeding is debilitating or if the tumors are growing rapidly. It is possible to remove many fibromyomas, including submucous, and preserve a uterus that is capable of impregnation and maintaining pregnancy. With tumors, especially submucous, it is more likely that the bleeding is organic rather than functional. The often-associated hyperplasia of the endometrium and the possibility of adenocarcinoma with fibromyoma should be kept in mind. X-ray therapy is contraindicated in this patient. The breast complication at the menstrual time is not indicative of failure of ovulation. With definite pathology in the pelvis as described, endocrine therapy probably would not be helpful. On the basis of the information at hand, it is suggested that pregnancy be encouraged, with some assurance that if accomplished it would go to termination. If the symptom of bleeding becomes more severe, operation might be necessary; however, conservative measures should be used if possible, in the hope of preserving childbearing function. The most radical procedure would be complete hysterectomy, but it is hoped that this would not be necessary. X-ray therapy in doses large enough to cause cessation of uterine bleeding in this patient would likely produce ovarian failure and would thus eliminate any worry concerning pregnancy and mutations in the second generation.

Answer.—From the description of findings and symptoms, it would seem that hysterectomy is not necessary and that myomectomies would not be feasible. Investigation of the fertility of husband and wife should be done, followed by such treatment as may be indicated. There does not seem to be any reason that pregnancy should not be attempted.

FUNCTIONAL GASTRIC DILATATION

To the Editor.—*A 39-year-old man suffers from periodic episodes of acute gastric dilatation. This is manifested by marked bloating and is usually accompanied by copious salivation. These attacks occur particularly when the subject is under some sort of mental strain or tension. A recently performed gastrointestinal series was negative for organic pathology. Examination of the heart, lungs, and blood pressure and serologic tests are negative. Antispasmodics and sedatives have been tried, to no avail. The patient obtains some relief by lying supine. The attacks may last up to one week and cause the patient considerable anguish. He may be perfectly normal for several months at a time and then suffer another attack. Please provide suggestions as to therapy of this apparently functional disorder.*

M.D., New York.

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—It is assumed that all possible organic conditions, even such uncommon conditions as diaphragmatic hernia, have been ruled out and that the patient's symptoms of acute gastric dilatation and marked salivation are functional or, more correctly speaking, psychogenic in origin. This impression is heightened by the fact that these symptoms occur intermittently and at times when the patient is under severe mental stress. It is a well-known fact that in states of acute anxiety or panic, symptoms of autonomic imbalance, such as dryness of the mouth and spasticity of abdominal viscera, are very common. In the case under discussion the symptoms presented by the patient, salivation and flaccidity (dilatation), although less commonly encountered, may also be ascribed to autonomic imbalance. The description of the attacks as presented strongly suggests an anxiety state; hence, a thorough psychiatric evaluation should be made. Every effort should be made to determine the psychodynamic factors that are responsible for this condition and then to institute the proper psychotherapeutic procedures. For symptomatic relief of the distressing physical symptoms, preparations of atropine and nicotinic acid may be tried.

ANSWER —The description of the symptoms, periodicity of occurrence, aggravation by mental strain and tension, and relief by lying supine suggest that this patient probably suffers from aerophagia that may be associated with a cascade type of stomach If relief is not obtained by his lying supine or in the right lateral decubitus position, it may be well to train the *patient to empty his stomach with an Ewald tube in* order to obtain immediate relief He should then be instructed in regard to a bland dietary regimen, with six small feedings daily instead of the usual three large feedings In addition to these measures, one should probably concentrate most intently on the psychotherapy of the patient and reassurance as to the functional etiology of his symptoms The patient should be instructed in regard to the mechanism of aerophagia and encouraged to make a conscious effort to refrain from air swallowing if he is ever to obtain permanent relief from his annoying psychosomatic complaint

TREATMENT OF NEVI

TO THE EDITOR —*A 50-year-old woman has been noticing a blue nevus of pinhead size on the tip of the nose and a junction nevus on her right cheek under her eye, without any changes, for about one year She would like to have both removed for cosmetic reasons Is it not a "must" to have the blue nevus removed as soon as possible? Why do dermatologists advise excision instead of cauterization? Would cauterization starting about 2 mm around the blue nevus and then going toward the nevus and under it not guarantee a sealing off (by coagulation) of any passway for the possible spreading of any cells of the nevus instead of the clean-cut wound edges and have a better cosmetic effect as well? What are the probable consequences if these two nevi are not removed? Recent articles demonstrated two cases of blue nevus in which, after removal of a blue nevus by excision (by reliable surgeons), metastatic carcinomas developed in the course of two years, although the primary tumors (nevi) had not shown any changes nor malignancy at the time of operation Please comment on these points*

M D, New York

This inquiry has been referred to two consultants, whose respective replies follow —ED

ANSWER —For the purposes of this discussion, it must be assumed that the diagnoses of 'blue nevus' and 'junction nevus' as given in the question are proved correct by histological examination It is not a 'must' to remove the blue nevus as soon as possible True blue nevi are considered to be benign lesions They are not premalignant Melanomatous degeneration in such growths is very uncommon Characteristically, malignant melanomas develop in junction nevi The latter type of tumor should be removed completely as soon as possible if it is subjected to trauma However, most junction nevi do not undergo malignant degeneration during the lifetime of the patient Therefore, there is a disagreement as to whether all junction nevi should be removed This decision must be made in individual cases by the clinician in charge of the patient or by his consultants

The type of cauterization of premalignant nevi that is condemned by dermatologists, surgeons, and pathologists refers to chemical or electrical destruction of the lesion with acid or by electrodesiccation Usually, *such destruction is incomplete It is possible* that this trauma is apt to increase the malignant tendencies of the remaining viable tumor cells Recent unpublished studies by Walton throw some doubt on this thesis However, until his experiments are confirmed by others and followed for a longer period of time and in larger series, it would be safer to assume that incomplete removal is dangerous With microscopic control, as advocated by Mohs, chemical destruction is permissible Excision is a more certain method of removing the entire tumor than the type of cauterization mentioned above and is preferred for melanomatous or premelanomatous neoplasms The excision of such a growth with a cutting cautery is another matter This is an excellent method of treating such a new growth Theoretically, the sealing of blood vessels and lymphatics by such a method is advantageous However, this advantage is more apparent than real If the nevus is removed completely by scalpel excision and the wound sutured, there should be no nevus cells left to become malignant or to metastasize to other portions of the body The only objections to cautery excision would concern comparatively erratic scarring and slow healing Such treatment might well result in a disfiguring scar on the tip of the nose in comparison to the result with scalpel excision and suturing or grafting In all probability, failure to remove these nevi would result in no harm to the patient However, if the junction nevus shows activity in the form of growth or darkening of color, excision is advisable Certainly, neither lesion described in the question would seem to be in areas subjected to excessive trauma It must be emphasized that incomplete removal, with too much attention paid to cosmetic considerations, would be more dangerous than therapeutic inactivity

Melanomas may metastasize widely before there is clinical or histological evidence of malignant activity in the supposed primary lesion However, there are certain reservations to the glib acceptance of these cases as being proved Unless serial sections are studied, one might miss microscopic changes of malignant activity that could be overlooked in sections taken haphazardly from different levels of the block Secondly, even a postmortem study might fail to uncover a primary malignant melanoma in some other part of the skin, central nervous system, eye, or mucous membranes Therefore, one can understand that the removal of a nevus considered to be benign on histopathological examination does not preclude the possibility of a focus of malignancy somewhere in that neoplasm nor that the patient may not have a comparatively hidden primary melanoma elsewhere in his body As stated previously, ordinary blue nevi are benign and do not metastasize The cellular blue nevus of Allen may metastasize to lymph nodes, but this is a different tumor from the true blue nevus

ANSWER.—A pinhead-sized area of pigmentation remaining unchanged for a period of one year is not at all characteristic of a true pigmented nevus. In a woman of 50 years of age, it is much more likely that what is described is a very minute area of early senile lentigo or freckle. The true nevus is not ordinarily of this dimension. It is hardly likely that upon pathological examination neval cells will be found. The blue nevus is ordinarily the pigmented (Jadassohn-Tierche) type of nevus. This is almost always a benign growth.

NOCTURNAL PAIN WITH RHEUMATIC FEVER

To THE EDITOR.—*A 21-year-old man has a history of six episodes of acute rheumatic fever between the ages of 11 and 19. The physical, x-ray, and fluoroscopic examinations reveal that the patient has a combined mitral and aortic lesion and that the lesion in both valves is predominently one of insufficiency. His heart is very enlarged, especially on the right side. The cardiac rhythm and rate are normal, and the aorta is relatively small. Blood pressure in the right arm is 172/0 mm. Hg. His lungs are clear, but his liver is enlarged about three fingerbreadths below the costal margin and is slightly tender. At the present time the patient's chief complaint is that he gets a sharp pain just under the xiphoid process almost regularly at midnight and only sometimes during the day. This pain lasts about one and one-half to two hours and is not associated with eating. He has no cough, hemoptysis, or edema. What is the possible cause of 'midnight pain' in this patient, and what therapy would bring relief? Antispasmodics and sedatives, such as Belladenal Spacetabs, Dactil, Tridal, and Spastosed, do not help too much. A consultant feels that, because of severe involvement of mitral and aortic valves, this patient is not a suitable candidate for surgical treatment with the techniques presently available.*

Juliann Movchan, M.D., Oakwood, Ohio.

This inquiry has been referred to two consultants, whose respective replies follow.—ED.

ANSWER.—It is inferred from the query that the subxiphoidal distress of which the patient complains is causally related to assumption of the recumbent posture. It would be interesting to know what precipitating factors seem to be operative when similar, but apparently much less frequent and milder, discomfort occurs during the day, e.g., changes in body position, exertion, or emotional stress. Possible causes of this symptom are (1) increased liver engorgement producing, especially when the patient is in the decubitus position, unusual traction on the xiphosternal ligaments and/or diaphragmatic attachments, (2) atypical angina pectoris due either to a reduction of the cardiac output with a resulting diminution of coronary blood flow or to increased pulmonary congestion and pressure secondary to an augmented pulmonary blood volume during recumbency (the pain in the latter situation, however, would be much more apt to be midsubsternal or located diffusely over the anterior chest), (3) increased right ventricular volume, secondary to increased venous return, resulting in more traction on the xiphosternal ligaments, and (4) diaphragmatic hernia.

If hiatal hernia has been ruled out, such measures as the use of digitalis, diuretics, and Decholin ought seriously to be considered. If the employment of these agents in adequate amounts has no beneficial effect, long-acting vasodilators, such as some of the newer forms of nitroglycerine, choline theophyllinate, and pentaerythritol tetranitrate, might be given a trial.

ANSWER.—In all probability, this 21-year-old man will never be a candidate for corrective surgery. The recurrent episodes of acute rheumatic fever, the last occurring two years ago, and the findings of far-advanced valvular heart disease pose a complex problem. Disregarding the technical aspects of improving the combined aortic and mitral insufficiency, it would seem quite likely that this patient has active myocardial disease as well. The likelihood of active rheumatic myocarditis is in itself a strong deterrent to elective cardiac surgery, even though the valvular disease may be amenable to corrective surgery.

Nocturnal pain is not uncommon in young patients with severe aortic insufficiency. This is in sharp contrast to the exertional type of angina associated with aortic stenosis. This fact has been recognized for some time and is looked upon as an ominous finding from the standpoint of the patient's longevity. This pain is thought to be anginal in nature, although its nocturnal occurrence is not understood. Medical therapy is often unsatisfactory, but it would nevertheless seem advisable to try the medicaments usually employed for angina pectoris. Young adults who have a history of recurrent episodes of acute rheumatic fever and who present multivalvular lesions constitute real problems in therapy. Surgical intervention is rewarded only in those cases in which the rheumatic myocarditis has subsided. This would seem quite unlikely when there are persistent congestive manifestations and when nocturnal pain becomes a clinical feature.

SATURATED AND UNSATURATED FATS

To THE EDITOR.—*Some very interesting reports have appeared on cholesterol and saturated and unsaturated fats. Are there any unsaturated oils on the market?*

M.D., Minnesota.

ANSWER.—Evidence is accumulating that one of the factors influencing blood cholesterol is the type of fat in the diet. Scientists are currently working on the relative importance of blood cholesterol and the amount and kind of fat in the diet in relation to coronary heart disease. However, it is certainly premature to suggest that all saturated fats be eliminated from the diet, even if this were possible. The common sources of saturated fats are hydrogenated shortenings, butter, lard, and animal fat. The common sources of unsaturated fats are corn oil, cottonseed oil, peanut oil, and certain fish oils.

TREATMENT OF TETANUS

To the Editor.—*What is the correct method to treat tetanus in the following cases? 1. A boy, aged 10 years, weight 90 lb. (40.8 kg.), received an injury out of doors from a pointed stick. The wound, which was 0.5 in. deep and 0.5 in. long, was explored and disinfected. He was given 1,500 units of tetanus antitoxin and 600,000 units of penicillin. Penicillin was given daily or every other day for 12 days. Ten days after the injury he developed mild trismus. The next day the trismus was more marked and mild opisthotonos was present. The family thought that he had had all immunizations as a baby and a booster at the age of 5 and that he had had "a shot" after an injury in 1955. 2. Another patient had injections but is not sure what they were after injuries he received 10 years ago. There is no way of finding out definitely. There is no history of known active immunization. He now has an injury where tetanus may develop. 3. The last patient is known to have received tetanus toxoid 12 years ago and again 6 years ago. The first time, he received a series of active immunization doses. He now has an injury in which tetanus may develop. In any patient, is opening the wound at the time of onset of tetanus advisable, and, if so, to what extent?*

M.D., Michigan.

Answer.—In reference to the first case, in which tetanus did develop, the following statements are pertinent. First, a dose of 1,500 units of tetanus antitoxin is inadequate. The literature contains numerous references to failures in prophylaxis attending the prompt administration of this amount of antitoxin. Recommendations for minimal doses of 5,000 to 10,000 units for prophylaxis may be found in medical literature. Second, parenteral administration of penicillin in adequate recommended dosage is not reliable in the prevention of tetanus. Experiments purporting to support its prophylactic action refer to its local implantation in wounds at the time of infection, and the prophylactic effects under such conditions are far from reliable (experimental studies in animals). Third, the history is vague and makes no reference to validation concerning the time of injections or verification of the contents of the inoculations. Considerable risk is entailed in acceptance of hearsay evidence concerning immunization with tetanus toxoid. In the absence of a reliable history of toxoid inoculation, complete reliance must be based on prophylaxis with adequate amounts of potent antitetanic serum in proper doses.

In reference to the second patient, the following meaningful problem exists. The nature of the injections following trauma 10 years ago is not known. Only one injection, without a background of a reliable history of administration of tetanus toxoid in either civilian or military practice, would suggest the previous employment of tetanus antitoxin, probably of equine origin. Consequently, the presence of an injury of potential tetanogenic character would validate the use of tetanus antitoxin. To achieve this purpose, an elaborately cautious approach is indicated in order to avoid both morbidity and mortality from acute anaphylactic shock secondary to previous allergic sensitization. A detailed program applicable to this purpose is contained in an article by Spaeth (*Nebraska M. J.* 41:224, 1956).

In reference to the third patient, the following information may be applied. First, a booster injection of tetanus toxoid may be relied on as long as 10 or more years after basic immunization. In the case cited, a booster injection was given six years ago. Hence, in general, a booster injection of about 0.1 cc. of fluid tetanus toxoid, injected deep subcutaneously, is reliable prophylaxis. For general purposes, however, in order to allow for errors in measurement and administration, a dose of 0.5 cc. should be recommended. Herein lies a differentiation between the immunologically effective and the clinically reliable amount recommended. The latter accepts the element of human fallibility under average circumstances. Second, when a delay of one or more days between injury and prophylaxis supervenes, or when a quite extensive injury possibly conducive to a short incubation period is encountered, the additive security of combined toxoid-antitoxin prophylaxis may be entertained. In other words, toxoid and antitoxin may be employed. This principle applies only when the patient has had toxoid in the past. If toxoid, in adequate amount, has not been given previously, only antitoxin is to be employed.

Exploration and disinfection of wounds is an accepted procedure in prophylaxis, provided disfigurement is not entailed. The recommendations for treatment of wounds are no different for the prevention of tetanus than for the prevention of other complications of penetrating trauma. Obviously, nonmutilating removal of foreign bodies is indicated under proper circumstances. However, local procedures should be supplemented with specific prophylactic measures, i. e., administration of tetanus antitoxin or tetanus toxoid, individually or combined, as indicated by the attending circumstances. Opening of the wound at the onset of tetanus is justified only if the wound would require surgical treatment in the absence of tetanus. In other words, general surgical principles apply. Experimental evidence indicates that surgical treatment of the local lesion does not influence the course of clinically established tetanus.

HYPERCHOLESTEREMIA

To the Editor.—*In a patient with a blood cholesterol range of 250 to 275 mg. per 100 cc., would the use of Cytellin or nicotinic acid have virtue for cholesterol control?* *M.D., New York.*

Answer.—The Journal previously published a statement of the Council on Pharmacy and Chemistry on hypercholesteremia and atherosclerosis and a monograph on the mixture of sitosterols marketed under the trade name, Cytellin (*J. A. M. A.* 160:670-671 [Feb. 25] 1956). Cytellin may be tried as a means of reducing the level of blood cholesterol, although the evidence so far indicates that this is considered an experimental form of therapy. There is no evidence to indicate that nicotinic acid would be useful to control the level of blood cholesterol.

RESEARCH REVIEWS

From time to time there will be published in this section of THE JOURNAL *brief but not necessarily complete reviews of some of the newer clinical aspects of medical research and practice. This material is gathered specifically for* THE JOURNAL.—ED.

HEPATITIS

The sixth international symposium sponsored by the Henry Ford Hospital in Detroit was held in October, 1956. The title was "Hepatitis Frontiers." The full text of the papers and the discussions following them will be published in book form.[1] This is a brief summary of some of the topics discussed.

It is now thought, although not by all workers in this field, that two forms of viral hepatitis, infectious hepatitis and serum hepatitis, are caused by different viruses. It has been reported that the incubation period of infectious hepatitis is 15 to 40 days and of serum hepatitis, 60 to 160 days.[2] The virus that is thought to cause infectious hepatitis is referred to as virus A (I. H.) and the virus thought to cause serum hepatitis is referred to as virus B (S. H.). According to W. P. Havens Jr.,[1] Jefferson Medical College, Philadelphia, it is at present not certain whether the immunologic difference between virus A and virus B is representative of different viruses or of various strains of a single virus with antigenic differences potentiated by as yet undefined influences. He poses the question whether the family that goes to make up virus B may represent variants of virus A. I. W. McLean,[1] Detroit, reported the successful passage of agents derived from human sources.

The incidence of serum hepatitis after the use of human blood or some of its fractions has at times been considerable. Of particular importance has been the recognition of outbreaks in clinics where incompletely sterilized instruments were used in medical and dental work and where the chances of contaminations by carriers of virus were frequent.

The epidemiology of hepatitis was discussed by J. R. Paul,[1] Yale University, New Haven, Conn. J. L. Melnick,[1] of the same university, described an explosive epidemic in India and presented evidence, obtained mostly by Indian scientists, that it was water-borne. Sven Gard,[1] Karolinska Institute, Stockholm, traced an epidemic of some 600 cases of infectious hepatitis to oysters. R. L. Gauld,[1] Walter Reed Army Institute of Research, Washington, D. C., pointed to the relatively minor role played by food and water in the dissemination of the causal agents of hepatitis in the armed forces. He believes that the scattered cases of infectious hepatitis that occur in the military forces are transmitted by person-to-person contact.

To prevent serum hepatitis, practical means of sterilizing blood have been studied. F. W. Hartman,[1] G. A. LoGrippo,[1] and A. R. Kelly,[1] Henry Ford Hospital, consider beta-propiolactone a potentially useful agent for this purpose. They believe that its action is virucidal. They are now investigating whether beta-propiolactone in a concentration sufficient to sterilize whole blood may be used without deleterious effects on erythrocytes. They hold that it has many properties that make it suitable for the sterilization of plasma. They have used it to sterilize arterial homografts and bone transplants, and they have kept packaged meat preserved by a 1% solution of beta-propiolactone for one week at room temperature without mold formation.

According to these workers,[3] beta-propiolactone can be used in the preparation of vaccines in a concentration in excess of the minimal effective virucidal dose with a wide margin of safety between the complete inactivation of virus and the loss of antigenicity. It is thought to be superior to other chemical agents in the preparation of virus-inactivated vaccines and is reported to inactivate viruses completely in 10 to 15 minutes at 37 C. Its virucidal action is said to be almost instantaneous, and viruses are inactivated before beta-propiolactone undergoes complete hydrolysis. It is stable in the absence of moisture and rapidly disintegrates in aqueous solution into nontoxic products chemically related to lactic acid. During the past five years, 414 patients in Detroit[1] received 1,153 transfusions with a total of 290 liters of beta-propiolactone–treated plasma. There were no cases of serum hepatitis following these transfusions, and there was no evidence of either acute or chronic toxic effect.

Undegraded beta-propiolactone has been studied experimentally as a carcinogenic agent.[4] The conclusion reached is that there seems to be no contraindication to its use in the sterilization of blood or plasma for transfusion because of its rapid and complete disintegration into other compounds.

According to R. Murray,[5] National Institutes of Health, Bethesda, Md., it is very difficult to destroy the agent of serum hepatitis by any means; he has been unable to do so with beta-propiolactone in a concentration of 3,500 mg. per liter. This was demonstrated in human volunteers. To reduce the quantity of beta-propiolactone necessary for the complete sterilization of biological fluids, the concomitant use of ultraviolet irradiation has been discussed at various times.[6] R. T. Jordan and L. N. Kempe,[7] City of Hope Medical Research Institute, Duarte, Calif., and University of Michigan, Ann Arbor, have attempted sterilization by gamma radiation from radioactive cobalt, and J. G. Trump,[1] Massachusetts Institute of Technology, Boston, by high-energy electrons. The storage of pooled plasma at room temperature as a means of preventing viral hepatitis has been reported by G Allen,[1] University of Chicago

R F Norris,[1] University of Pennsylvania, Philadelphia, discussed the problem of detecting asymptomatic carriers of viral hepatitis in the selection of blood donors Although, in his opinion, hepatic function tests used thus far do not appear to be specific for liver disease or viral hepatitis, he believes that a significant number of asymptomatic carriers of viral hepatitis can be detected by employing these tests in screening He said that measurement of serum transaminase activity may also be useful in a screening program

In the discussion of laboratory methods in differential diagnosis, F Wróblewski,[1] Memorial Center for Cancer and Allied Diseases, New York, referred to measurements of glutamic oxaloacetic transaminase and glutamic pyruvic transaminase He showed that, in acute infectious and in serum hepatitis, there is an increase in both these enzymes in the serum He said that there seems to be a close relation between the level of these serum transaminases and the clinical state of the patient, with levels reaching a peak of 10 to 100 times the normal at the time when fever, malaise, anorexia, nausea, vomiting, and hepatic tenderness are at their height With subjective and objective improvement, there is a concomitant fall in the level of both serum transaminases In a paper to be published,[7] he and his colleagues claim that elevations in the serum level of transaminases reflect subclinical hepatitis more sensitively than the conventional liver-function tests

H Ducci,[1] Santiago, Chile, referred to the use of serum aldolase and serum iron determination in the differentiation between acute and chronic types of liver disease with jaundice He had found that patients with hepatitis showed high aldolase and serum iron values In acute hepatitis, aldolase and bilirubin followed a parallel course, reaching normal values almost simultaneously, while the serum iron level remained elevated for a longer period R Ward,[1] New York University College of Medicine, New York, said that the serum phosphohexose isomerase test developed by Bodansky was useful in the detection of the disease in children before symptoms developed

H L Bockus,[1] University of Pennsylvania, Philadelphia, as moderator of the round-table discussion on differential diagnosis of hepatitis, suggested that the galactose test should not be discarded and should be used in conjunction with the other tests now in favor G Viollier,[1] Basel, Switzerland, showed how electrophoretic blood protein patterns may be used in the differential diagnosis of liver disease He thought that, while the changes in the blood protein patterns are not specific for liver disease, they permit conclusions as to diagnosis and prognosis

J L Bollman,[1] Mayo Clinic, Rochester, Minn, said that there are now three biliary pigments known Pigments I and II give a direct van den Bergh reaction, they are excreted in the bile and may be excreted in the urine He believes that pigment I and bilirubin are formed outside the liver and that conversion of these two pigments to pigment II occurs only in the liver In animals, pigment II predominated in the blood after uncomplicated obstruction of the common bile duct, which was taken to indicate that pigment I and bilirubin continued to be converted to pigment II With continued biliary obstruction, larger amounts of pigment I appeared in the blood In 50 patients with hepatocellular disease or obstructive jaundice, partition of the three bile pigments of their serums appeared to indicate that retention of a large portion of pigment I was associated with hepatocellular disease and that larger amounts of pigment II were retained when biliary obstruction was present

Observations on bilirubin-protein linkages in serum and their relation to the van den Bergh reaction have been made by G Klatskin,[8] Yale University, who has reported that the bulk of bilirubin in serum is bound to albumin, irrespective of its behavior in the van den Bergh reaction He believes that there is no evidence that, in the breakdown of hemoglobin, globin remains attached to its prosthetic group to yield indirect-reacting bilirubin and that the two types of van den Bergh reaction are not related to differences in bilirubin-protein linkages

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4 Walpole, A L, and others Cytotoxic Agents IV Carcinogenic Actions of Some Monofunctional Ethyleneimine Derivatives, Brit J Pharmacol **9**:306-323, 1954 Roe, J F C, and Salaman, M H Further Studies on Incomplete Carcinogenesis: Triethylene Melamine (T E M), 1,2-Benzanthracene, and Beta Propiolactone as Initiators of Skin-Tumor Formation in the Mouse, Brit J Cancer **9** 177-203, 1955

5 Murray R Unpublished data

6 Hartman, F W, and others Combined Procedures for Virus Inactivation in Blood, read before the 39th Annual Meeting of the American Society for Experimental Pathology, Atlantic City, N J, April 1954 Smolens, J, and Stokes, J, Jr Combined Use of Ultraviolet Irradiation and Beta Propiolactone Sterilization of Sera Infected with Virus, Proc Soc Exper Biol & Med **86** 538-539, 1954 Stokes J, Jr[1]

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8 Klatskin, G and Bungards, L Bilirubin Protein Linkages in Serum and Their Relationship to van den Bergh Reaction, J Clin Invest **35**:537-551, 1956

« Washington News »

Two Senators ask 500 Million for Cancer Research • •
New Small Business Loans to Nursing Homes • •
Dr Allman Addresses Health Insurance Group • •
Congress Hearing Support for Jenkins-Keogh Bill • •
International Otolaryngology Congress Meets • •
Indian Nutrition Problems Under Study • •

HALF A BILLION DOLLARS ASKED FOR CANCER RESEARCH

The Senate appropriations subcommittee closed extensive hearings on the Health, Education, and Welfare budget after hearing more than a hundred witnesses urge continued or increased spending in the health-welfare fields One of the last witnesses was Senator Neuberger (D , Ore), who asked that the HEW budget for the next fiscal year be sharply increased for cancer research

The Oregon senator, along with Senator Morse (D , Ore), has introduced an amendment to the HEW appropriation bill that would provide 500 million dollars for the National Cancer Institute, to be used for arriving at a cure for cancer Unlike a regular appropriation, which must be spent or committed during the fiscal year, funds under the Neuberger-Morse amendment could be used until totally expended

Senator Neuberger emphasized to the appropriations group headed by Senator Hill (D , Ala) that cancer should be attacked along the same line as the U S development of atomic and intercontinental ballistic weapons The administration asked Congress in January for $46,902,000 for the Cancer Institute for the 12 months starting July 1 The House agreed with this figure, and the matter is still before the Hill subcommittee

The subcommittee heard additional pleas for allowing 25% for overhead costs to institutions and medical schools getting federal research money The House last year set a 15% limit, which has produced objections both in and out of government Among those asking for a higher percentage were Drs Isador Ravdin, University of Pennsylvania Medical School, Harold Diehl, University of Minnesota Medical School, Irving Wright, Cornell University Medical School, Cowles Andrus, John Hopkins University Medical School, and Sidney Farber, Children s Hospital, Boston

Other physicians testifying in support of health items were Drs John H Talbott, University of Buffalo Medical School, Rene Dubos, Rockefeller Institute, Walsh McDermott, Cornell University Medical School, Alson Braley, Iowa School of Medicine, Arthur Colwell, Northwestern University School of Medicine, and H Houston Merritt, New York Neurological Institute

Organizations represented at the hearings and urging approval of research funds already voted by the House included the American Cancer Society, the National Committee Against Mental Illness, the Arthritis and Rheumatism Foundation, and the National Committee for Research in Neurological Disorders This last group is made up of nine organizations such as United Cerebral Palsy, Muscular Dystrophy Association, National Association of Crippled Children and Adults, and National Epilepsy League

Other budget developments in the closing days of the hearings were as follows

A witness for the AFL-CIO generally urged increases all along the line, and, supporting federal construction aid to medical and dental schools, described this as "perhaps the most seriously neglected area of all in the entire health field '

Social Security Commissioner Schottland said there were few agencies of government that have had "legislative changes which resulted in such substantial program and work load expansions as we have within the last year " Included in this category are the disability cash payments which will start going out July 1 to disabled workers 50 years or older whose claims have been processed and allowed Mr Schottland estimated that during the present fiscal year more than 10 million individuals will receive Old-Age and Survivors Insurance payments, a total in excess of 6 billion dollars

Col Frank B Rogers, director of the National Library of Medicine, declared that no other medical agency of the federal government "serves the future of medical research more intimately and more widely than does the unequaled collection of books, journals, and bibliographic services brought together in the National Library of Medicine ' The library is under the supervision of the Public Health Service

NURSING HOMES GET FEDERAL AID

Three nursing homes and a hospital have recently received loans for expansion of facilities under the Small Business Administration program The agency lends money to various small businesses when local financing is not available on reasonable terms SBA loan operations have been curtailed since February because of near exhausation of its revolving fund, but recent deficiency appropriation of 45 million dollars has put the SBA back in business

The SBA listed these loans to health facilities Hocott Memorial Home, Little Rock, Ark , $50,000, Farragut Nursing Home, Brooklyn, N Y , $50,000, Buffalo Hospital, Buffalo, Okla , $33,000, Alondra Nursing Home, Gardena, Calif , $87,000

HEALTH INSURANCE ASSOCIATION MEETING

Progress and problems in the health insurance field were discussed at the annual meeting of the Health Insurance Association of America The 450 delegates, representing 256 companies, also heard A M A President-elect David B Allman outline the physician's concern with the financing of medical service and Secretary Folsom explain why the administration wanted Congress to pass a bill for construction aid to medical schools

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From the Washington Office of the American Medical Association

Appearing on a panel, Dr. Allman told the insurance people:

"I am . . . convinced . . . that your industry must step up markedly your program of physician-relations. You cannot expect physicians to understand fully the relation between fees and the salability of major medical insurance . . . you must discuss frankly with practicing physicians and their local medical societies the needs and objectives of this type of insurance. Such a program of professional relations takes money and personnel but I urge you to undertake it."

Dr. Allman said the medical profession wants a price for its services that can be met by the public "through mechanisms that do not adversely affect the quality of care rendered," but that any mechanism that is a step toward socialization must be opposed. He said the physicians will expect adequate compensation, but that they will question the provision of care by closed panels. Also, Dr. Allman declared, doctors will oppose government financing of medical costs "that are properly and more wisely the obligation and responsibility of individuals."

In summary, he said:

"The physician will support or oppose any program for the financing of health care costs depending on the effect of that program on the quality of the service the physician renders. So long as the insurance you promote is consistent with the maintenance of high quality medical care you can be assured that medicine will support you."

After discussing the national interest in medical research, Mr. Folsom said it was also necessary to increase the supply of medical scientists trained in research.

"Unless we have the facilities to teach the number of scientists and physicians we need," he stated, "our medical progress in the future could be seriously retarted. Therefore, we have appealed to Congress to expand this legislation to include help in the construction of medical teaching facilities."

He described the administration's aid to medical education bill as "a sound, prudent, and profitable investment in the future health of the American people."

CONGRESS RECEIVES MESSAGES ON JENKINS-KEOGH

Members of the House and Senate have received "thousands of messages" urging passage of the Jenkins-Keogh retirement legislation, Rep. Thomas Jenkins (R., Ohio) declared in a speech explaining the proposal to the House.

"I am sure that practically all members have been receiving messages of some kind with reference to the Jenkins-Keogh bill," he said. "As proof that it is a good bill, on yesterday I received 300 telegrams in favor of the bill, so it seems to be very popular. These telegrams were signed by doctors, lawyers, influential businessmen. The measure now is before the House Ways and Means Committee.

"I am advised," he continued, "that membership of the House and Senate have received thousands of messages, most from business and professional men and women." In an analysis of the legislation, Mr. Jenkins made these points:

1. It would allow the self-employed to defer income taxes on a portion of their income if put into a restricted annuity plan.

2. Actual annual deductions could not exceed 10% of self-employment income, or $5,000, whichever is the lesser. However, for persons now 50 years of age or over, deductions could be increased 1% a year between ages 50 and 70. Deductions over a lifetime could not exceed 20 times the maximum annual deduction.

3. The definition of self-employed would be the same as that used for Social Security, except that persons not covered by Social Security also would be eligible under this pension plan.

4. Funds could be invested only in federal, state, and municipal securities, corporate stock, or securities listed on a recognized exchange. Approved retirement policies also would include life insurance or annuity contracts, except that the cost of life insurance protection could not be deducted.

5. Generally, retirement funds would not be payable until age 65, at which time they would be subject to payment of income tax by the recipients; money could be withdrawn earlier, but only on payment of a tax penalty.

INTERNATIONAL CONGRESS OF OTOLARYNGOLOGY

For a full week, 1,600 otolaryngologists from 48 countries all over the world met together in Washington to exchange ideas. The meeting was the sixth International Congress of Otolaryngology, and the first such session held in the United States. It was sponsored by the five American societies of otolaryngology.

Principal subjects discussed were chronic suppuration of the temporal bone, collagen disorders of the respiratory tract, and papilloma of the larynx. Approximately 250 voluntary scientific contributions were made available in the form of papers or lectures, and 65 medical motion pictures were shown. The latest advances in otolaryngology were shown in scientific exhibits and color television.

Vice-president Nixon, one of the guest speakers, complimented the physicians on their international cooperation and said the world would be better off if politicians could develop the same type of cooperation. He paid particular tribute to those physicians who speak "many languages." Official languages of the congress were English, French, and German.

COMMITTEE NAMED TO STUDY INDIAN'S NUTRITIONAL PROBLEMS

To help it determine the extent to which faulty nutrition is the cause of Indian health problems, the Public Health Service has appointed a consultant committee composed of professional leaders from the fields of medicine and nutrition.

The committee, which held its organization meeting April 29, will determine priorities for nutrition research and the most suitable methods of investigation. Also, acting for the PHS, it will review nutrition research projects involving Indians which are proposed by individuals and institutions.

Members of the committee, which will meet twice a year, are Dr. William J. Darby, Vanderbilt University; Dr. Olaf Michelsen, National Institutes of Health; Dr. John Adair, Cornell University; Miss Marjorie Heseltine, U. S. Children's Bureau; Dr. Robert E. Shank, Washington University School of Medicine, St. Louis, Mo.; Dr. Charlotte Young, Cornell University, and Dr. Luther L. Terry, National Heart Institute.

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Consultation Service: Treatment of Nausea During Pregnancy, Postgrad. Med. 7:383 (May) 1950.

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SEARLE

MEETINGS

AMERICAN MEDICAL ASSOCIATION Dr George F Lull, 535 North Dearborn St, Chicago 10, Secretary
1957 Annual Meeting New York, June 3 7
1957 Clinical Meeting, Philadelphia Dec 3 6
1958 Annual Meeting, San Francisco June 23 27
1958 Clinical Meeting Minneapolis, Dec 2 5
1959 Annual Meeting, Atlantic City June 8 12
1959 Clinical Meeting Dallas Texas Dec 1-4

AMERICAN

May

Alaska Territorial Medical Association Elk s Club Ketchikan May 29-31 Dr Robert B Wilkins 1121 Fourth Ave Anchorage Secretary

American College of Chest Physicians Hotel Commodore New York May 29-June 2 Mr Murray Kornfeld 112 E Chestnut St. Chicago 11 Executive Director

American Geriatrics Society Waldorf-Astoria New York May 30 31 Dr Richard J Kraemer Greenwood R I Secretary

American Goiter Association Hotel Statler New York May 28 30 Dr John C McClintock, 149½ Washington Ave Albany N Y Secretary

American Gynecological Society The Homestead Hot Springs Va May 27-29 Dr Andrew A Marchetti 3800 Reservoir Road N W Washington 7 D C Secretary

American Medical Women s Association Barbizon Plaza New York May 30 June 2 Mis Lillian T Majally 1790 Broadway New York 19 Executive Secretary

American Ophthalmological Society The Homestead Hot Springs Va May 30 June 1 Dr Maynard C Wheeler 30 W 59th St New York 19 Secretary

American Radium Society Quebec City Canada May 30 June 1 Dr Theodore R Miller 139 E 36th St New York 16 Secretary

American Society for the Study of Sterility New York May 31 June 2 Dr Herbert H Thomas 920 S 19th St Birmingham 5 Ala Secretary

American Therapeutic Society Essex House New York May 30 June 2 Dr Oscar B Hunter Jr 915 19th St N W Washington 6, D C Secretary

Catholic Hospital Association of the United States and Canada Hotel Statler Cleveland May 27 30 Mr M R Kneifl 1438 S Grand Blvd St Louis 4 Executive Secretary

The Endocrine Society Hotel New Yorker New York May 30 June 1 Dr Henry H Turner 1200 N Walker St Oklahoma City 3 Secretary

United States Section International College of Surgeons Regional Meeting Eastern Whiteface Inn Lake Placid N Y May 30 June 1 Dr James P Fleming 125 Meigs St Rochester 7 N Y General Chairman

Western Branch American Public Health Association Lafayette Hotel Long Beach Calif May 29 June 1 Mrs L Amy Darter 2151 Berkeley Way Berkeley 4 Calif Secretary

June

American Academy of Tuberculosis Physicians Henry Hudson Hotel New York June 1 Dr Oscar S Levin P O Box 7011 Denver 6 Secretary

American Association of Neuropathologists Claridge Hotel Atlantic City N J June 16 17 Dr Leon Roizin 722 W 168th St New York 32 Secretary

American College of Angiology Plaza Hotel New York June 1 2 Dr Alfred Halpern 15 East 62d St New York 21, Executive Secretary

American Diabetes Association Hotel Commodore New York June 1 2 Dr Franklin B Peck Sr 1 East 45th St New York 17 Executive Secretary

American Hearing Society St Louis June 5 9 Mr Crayton Walker 1800 H St N W Washington 6 D C Executive Director

American Neurological Association Hotel Claridge Atlantic City N J June 17-19 Dr Charles Rupp 133 S 36th St Philadelphia 4 Secretary

American Orthopedic Association The Homestead Hot Springs Va June 24-27 Dr Harold A Safield 715 Lake St Oak Park Ill Secretary

American Pediatric Society La Playa Hotel Carmel Calif June 17 19 Dr A C McGuinness 1427 I St N W Washington 5 D C Secretary

American Physicians Art Association Plaza Hotel New York June 3 7 Dr Francis H Redewill Jr 124 East Hadley St Whittier Calif Secretary

American Rheumatism Association Royal York Hotel Toronto Ont Canada June 23-28 Dr Edward F Hartung 580 Park Ave New York 21 Secretary

American Society of Facial Plastic Surgery Biltmore Hotel New York June 5 Dr Samuel M Bloom 123 E 83d St New York 28 Secretary

Association for Research in Ophthalmology Park Sheraton Hote New York June 3 Dr Lorand V Johnson 10515 Carnegie Ave Cleveland 6 Secretary

Conference of Presidents and Other Officers of State Medic Associations Waldorf-Astoria New York June 2 Mr James A Wagener 1021 Hume Mansur Bldg Indianapolis 4 Secretary

Idaho State Medical Association Sun Valley June 16 19 Mr Arman L. Bird 364 Sonna Bldg Boise Executive Secretary

Maine Medical Association The Samoset Hotel Rockland June 23 2 Dr Daniel F Hanley Dudley Coe Infirmary Bowdoin College Brunswick Executive Director

North American Chapter International Society of Angiolog Biltmore Hotel New York June 1 Dr Henry Haimovici 105 E 90th St New York 28 Secretary

Society of Biological Psychiatry Claridge Hotel Atlantic City N J June 15-16 Dr George N Thompson 2010 Wilshire Blvd Los Ange 57 Secretary

Society for Investigative Dermatology Belmont Plaza Hotel New York June 1-2 Dr Herman Beerman 255 S 17th St Philadelphia Secretary

Society of Nuclear Medicine Skirvin Hotel Oklahoma City June 20 2 Dr Robert W Lackey 452 Metropolitan Bldg Denver Secretary

Society for Pediatric Research La Playa Hotel Carmel Calif Jun 16 21 Dr Sydney S Gellis 330 Brookline Ave Boston 15 Secretary

Society for Vascular Surgery Biltmore Hotel New York June 2 D Henry Swan 4200 E 9th Ave Denver 20 Secretary

The University of Michigan Regional Conference on Hypertensio Ann Arbor Mich June 7-8 Dr John Sheldon Univ of Michiga Medical School Ann Arbor Mich Director

Woman s Auxiliary to the American Medical Association Roosevel Hotel New York June 3-7 Miss Margaret Wolfe 535 N Dearborn St. Chicago 10 Secretary

Wyoming State Medical Society Jackson Lake Lodge Moran Jun 16 19 Mr Arthur R Abbey Box 2036 Cheyenne Executive Secretary

July

American Congress on Maternal Care Palmer House Chicago Jul 8 12 Mr Howard I Wells Jr 116 S Michigan Ave Chicago 3 Executive Secretary

Rocky Mountain Cancer Conference Shirley Savoy Hotel Denver July 10-11 Dr John S Bouslog 835 Republic Bldg Denver Chairman

INTERNATIONAL AND FOREIGN

May

Congress of French Chapter International College of Surgeons Reims France May 24-26 1957 Dr Darget 17 rue Casteja Bordeau (Gironde) France Secretary General

Congress of International Association for Study of the Bronch Lisbon Portugal May 25 26 1957 For information address Prof F Lopo de Carvalho 138 rua de Junqueira Lisbon Portugal

International Congress for Social Medicine Vienna Austria May 30-June 2 1957 Secretariat Prof Dr T Antonione Vienna 9 Spitalgasse 23 Austria.

International Voice Conference (Laryngeal Research Functio and Therapy) Chicago Illinois U S A May 20 22 1957 For information address Dr Hans von Leden 30 North Michigan Ave Chicago 2 Illinois U S A

World Congress for Acupuncture Vienna Austria May 25 28 1957 For information address Austrian Association for Acupuncture VI Schwenderstrasse 57 Vienna Austria

June

Canadian Medical Association Edmonton Alberta Canada June 17 21 1957 Dr A D Kelly 150 St George Street Toronto 5 Ont Canada, General Secretary

International Congress on Medical and Scientific Film Palace of Expositions at the Valentino Turin Italy June 1 9 1957 For information address Secretariat Minerva Medica Corso Bramante 83 85 Turin Italy

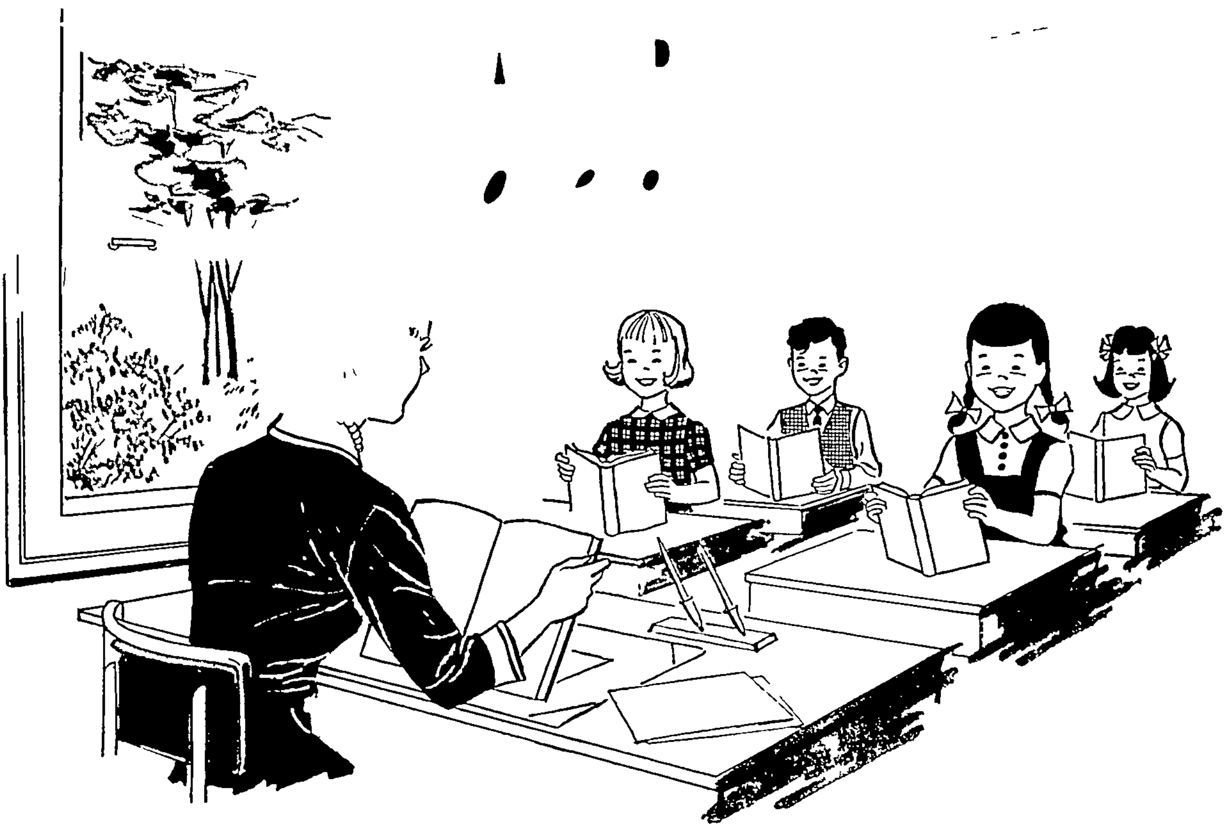
International Congress on Medicine and Surgery Palazzo of Expositions at the Valentino Turin Italy June 1 9 1957 For information address Segreteria Generale Minerva Medica Corso Bramante 83-85 Turin Italy

International Congress of Photobiology Torino Italy June 2 8 1957 For information address Prof Enrico Benassi Dept of Radiology University of Torino Torino Italy

International Congress on Rheumatic Diseases Toronto Ont Canada June 23 28 1957 For information address International Congress on Rheumatic Diseases P O Box 237 Terminal A Toronto Ont., Canada

International Convention of X Ray Technicians Sheraton Park Hotel Washington D C U S A June 8-13 1957 Miss Leslie A Majors R T 5710 Newton St, Cheverly Md U S A Chairman Publicity Committee

(Continued on page 26)



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[1] Johnson, H J, Jr Am Pract & Digest Treat *5* 862 (Nov) 1954

[2] Beale, H D , Rawling F F A , and Figley, K D J Allergy *25* 521 (Nov) 1954

International Hospital Federation Lisbon Portugal June 3-7 1957 Capt J E Stone 10 Old Jewry London EC2 England Secretary-General

International Therapeutic Congress Utrecht Netherlands June 4 6 1957 Dr F A Nelemans Vondellaan 6 Utrecht Pays Bas Netherlands Secretary General

William Harvey Tercentenary Congress Royal College of Surgeons London England June 3 7 1957 Dr D Geraint James Harveian Society of London 11 Chandos St Cavendish Square London W 1 England Honorary Secretary

July

British Medical Association Newcastle upon Tyne July 15-19 1957 Dr A Macrae B M A House Tavistock Square London W C 1 England Secretary

International Congress of Clinical Pathology Brussels Belgium July 15 20 1957 Prof M Welsch Service de Bacteriologie et de Parasitologie Universite de Liege 32 Blvd de la Constitution Liege Belgium Secretary General

International Congress of Dermatology Stockholm Sweden July 31-Aug 6 1957 Dr C H Floden Karolinska Sjukhuset Hudkliniken Stockholm 60 Sweden Secretary General

International Congress of Electroencephalography and Clinical Neurophysiology Brussels Belgium July 21 28 1957 For information address Dr R G Bickford Mayo Clinic Rochester Minnesota U S A

International Congress of Neurological Sciences Brussels Belgium July 21 28 1957 For information address Dr Pearce Bailey National Institute of Health Bethesda 14 Maryland U S A

International Congress of Neuropathology Brussels Belgium July 21 28 1957 Dr Ludo van Bogaert 47 rue de l Harmonie Antwerp Belgium Secretary General

International Congress of Neurosurgery Brussels Belgium July 21-28 1957 For information address Dr William B Scoville 85 Jefferson Street Hartford Connecticut U S A

International Congress of Nutrition Paris France July 24 29 1957 For information address Congress International de Nutrition 71 Blvd Pereire Paris 17e France

International Congress on Occupational Health Helsinki Finland, July 1 6 1957 Dr Pertti Sumari c/o Tyoter Veyslaitos Haattmaninkatu 1 Helsinki Toolo Finland Secretary General

International Congress of Permanent International Committee on Industrial Medicine Helsinki Finland July 1 6 1957 For information write Secretary General 3 Chemin de l Escalada Geneva Switzerland

International Congress of Psychology Brussels Belgium July 28-Aug 3 1957 Dr M Louis Delys 296 Ave des Sept Bonniers Forest Brussels Belgium Secretary General

International Gerontological Congress Merano Bolzano Italy July 14-19 1957 For information address Segreteria Quarto Congresso Internazionale de Gerontologia Viale Morgagni 85 Firenze Italy

International League Against Epilepsy Brussels Belgium July 21 28 1957 Dr Radermecker Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Meeting on Forensic Pathology Brussels Belgium July 20 21 1957 For information address Dr F E Camps Dept of Forensic Medicine The London Hosp Medical College Turner St London E1 England or Dr Arthur H Dearing Executive Secretary College of American Pathologists 2115 Prudential Plaza Chicago 1 Ill U S A

International Neurological Congress Brussels Belgium July 21 28 1957 Dr Ludo van Bogaert Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Poliomyelitis Conference Geneva Switzerland July 8 12 1957 Secretariat Hotel du Rhone Geneva Switzerland

International Psychoanalytical Association Paris France July 28-Aug 1 1957 For information write Dr S Nacht 187 rue St Jacques Paris France

International Society of Geographical Pathology Paris France July 9 11 1957 For information address Dr J P Hardouin 21 Avenue Pierre de Serbie Paris 16 France

International Society for the Welfare of Cripples London England July 22 27 1957 For information address Miss M Drury 34 Eccleston Square London S W 1 England

International Symposium on Medical Social Aspects of Senile Nervous Diseases Venice Italy July 20 21 1957 For information address Secretariate Viale Morgagni 85 Firenze Italy

Neuroradiologic Symposium Brussels Belgium July 21 28 1957 For information address Professor Melot Hôpital Universitaire St Pierre Brussels Belgium, Secretary General

August

Argentine Congress of Gastroenterology Salta Argentina S A Aug 12-17 1957 Secretariat Avenida Santa Fe 1171 Buenos Aires Argentina S A

Congress of International Society for Cell Biology St Andrews Fife Scotland Aug 28 Sept 3 1957 Prof H G Callan Bell Pettigrew Museum The University St Andrews Fife Scotland Secretary General

International Congress on the Biology of the Hair Follicle and the Growth of Hair Royal Society of Medicine London England Aug 7 9 1957 Dr G H Bourne London Hospital Medical College Whitechapel London E 1 England Hon Secretary

International Congress of European Society of Haematology Copenhagen Denmark Aug 26 31 1957 Dr Aage Videbaek Blegdamsvej 11 Copenhagen Denmark Secretary General

International Congress on Group Psychotherapy Zurich Switzerland Aug 29 31, 1957 For information write Dr Joshua Bierer 140 Harley St London W 1 England

International Society for the Study of Biological Rhythms Semmering Austria Aug 26 28 1957 For information write Prof A Jores II Med Universitats Klinik Hamburg Eppendorf Germany

International Symposium on Curare and Curarizing Substances University of Brazil Rio de Janeiro Brazil Aug 5 10 1957 For information write Prof Carlos Chagas Instituto de Biofisica Universidade do Brazil 458 Avenida Pasteur Rio de Janeiro Brazil or Prof Daniel Bovet Instituto Superiore di Sanita, 299 Viale Regina Elena Rome Italy

World Federation for Mental Health Copenhagen Denmark Aug 11 17 1957 Miss E M Thornton M A 19 Manchester St London W 1 England Secretary General

September

Congress of International Society of Orthopedic Surgery and Traumatology Barcelona Spain Sept 16 21 1957 For information address International Society of Orthopedic Surgery and Traumatology 34 rue Montoyer Brussels Belgium

Congress of International Union of Railway Medical Services Paris France Sept 16-21 1957 For information write Dr J Ortega 41 rue Michelet Paris 6, France

International Conference on Radio Isotopes in Scientific Research Paris France Sept 9 20 1957 For information address United Nations Educational, Scientific and Cultural Organization 19 Avenue Kleber Paris 16 France

International Congress of the International Union of the Medical Press London England Sept 13 14 1957 For information write British Medical Association B M A House Tavistock Square London W C 1 England

International Congress of Military Medicine and Pharmacy Beograd and Opatija Yugoslavia Sept 29 Oct 5 1957 Colonel Dr Aleksandar Mezic rue Nemanjina 15, Beograd Yugoslavia Secretary General

International Congress of Psychiatry Zurich Switzerland Sept 1 7 1957 For information write Prof J Wyrsch Stans (Lucerne) Switzerland

International Symposium of Medicine and Social Hygiene Trieste September 6-12 1957 Dr Mario Lovenati Via Cavana 18 Trieste Secretary General

World Medical Association, Istanbul Turkey Sept 29 Oct 5 1957 Dr Louis H Bauer 10 Columbus Circle New York 19 New York U S A Secretary General

October

Assembly of Association of French Speaking Doctors Great Hall Faculty of Medicine 85 Boulevard Saint Germain Paris France Oct 16 18 1957 For information address General Secretary Congrés Francais de Medecine Prof G Boudin Paris France

Congress of International Society of Surgery Mexico City Mexico Oct 27 Nov 2 1957 Dr L Dejardin 141 rue Belliard Brussels Belgium General Secretary

French Congress of Otolaryngology Faculte de Medecine de Paris Paris France Oct 15 18 1957 For information address Administrative Secretary French Congress of Otolaryngology 17 Rue de Buci Paris France

International Congress of International Society of Angiology Atlantic City N J U S A Oct 10-13 1957 Dr H Haimovici 105 East 90th Street New York 28 New York U S A Secretary General

November

Inter American Congress of Pan American Medical Association Mexico City Mexico Nov 18-22 1957 Dr Joseph J Eller 745 Fifth Ave New York 22 N Y U S A Executive Director

Pacific Science Congress Bangkok Thailand Nov 18 Dec 2 1957 For information address Pacific Science Council Secretariat Bishop Museum Honolulu 17 Hawaii

Pan American Congress of Endocrinology Buenos Aires Argentina, Nov 3 9 1957 For information address Secretaria General Sociedad Argentina de Endocrinologia y Metabolisms Santa Fe 1171 Buenos Aires Argentina

Pan Pacific Surgical Congress Honolulu Hawaii Nov 14-22 1957 Dr F J Pinkerton Room 230 Alexander Young Bldg Honolulu 13 Hawaii Director-General

1958

April

International Congress of Internal Medicine Sheraton Hotel Philadelphia Pa U S A April 24 26 Mr E R Loveland 4200 Pine St Philadelphia 4 Pa U S A Secretary General

International Congress of Legal and Social Medecine Madrid Spain April 16-19 For information address Prof B Piga, Dept of Legal Medicine Madrid University Madrid Spain

(Continued on next page)

From other Pages

Gods—Saints and Pestilences

In the pantheon of ancient Greece, Apollo, the Far-Darter, was the god who flung the arrows of pestilence among humanity, and in the first book of the Iliad, Homer makes Chryses, a priest of Apollo, call upon the god to send a plague among the Greeks because Agamemnon had refused to restore the captive daughter of Chryses to her father He was also, as Homer relates, the physician to the Olympian gods, whose wounds or diseases he cured by means of the root of the peony Apollo, therefore originally occupied a dual role in the Greek pantheon—he was at once the celestial sower of pestilence and the chief god of healing Later the Greeks, to obviate this antithesis, decided to confine Apollo s activities to the dissemination of pestilences They accordingly discovered Æsculapius and invested him with such marvellous powers of healing that Pindar said that Pluto persuaded Zeus to destroy him because he had so much reduced the number of shades in Hades After his death he was elevated to the Greek pantheon as the God of Healing and his cult became widespread throughout the Ancient Greek and Roman worlds

Since the death of Jesus Christ, Christendom has repeatedly been scourged, and sometimes devastated, by epidemics of disease Christian societies attributed these visitations to the righteous wrath of God who had sent his Angel of the Pestilence down from Heaven to Earth to punish humanity for its sins The mediaeval conception of the origin of pestilential disease is clearly expressed in Delaunay s beautiful representation of the Plague of Rome In this painting he depicts the Angel of the Lord as pointing out to the Spirit of the Pestilence the homes of those who have been selected to experience the divine punishment

One of the earliest and most venerated of the Christian saints who were specifically invoked in times of pestilence was St Sebastian About A D 283, according to Butler he voluntarily entered the Roman army in order to be able to help the Christian martyrs without arousing suspicion Apparently he early won the favourable notice of the emperor, Diocletian, who, ignorant of his religious beliefs, promoted Sebastian to be a company commander in the Praetorian Guards In A D 286 however, he was betrayed to Diocletian According to the legend, he was first condemned to be fastened to a stake and shot to death by arrows—note the introduction of the arrow, or dart, motif in connexion with a patron saint of pestilence—and when his body was studded with arrows his executioners quite reasonably left him for dead That night, however, Irene the widow of his martyred friend, St Castulus, coming to collect the body for Christian burial, found that Sebastian was still alive and managed to nurse him back to health After he had regained his health Sebastian deliberately accosted Diocletian in public and denounced his abominable cruelties to the Christians, with the result that the emperor had him beaten to death with clubs

The earliest representation of St Sebastian in Christian art appears to be the ancient mosaic in the church of San Pietro in Vincoli, which was supposedly executed in A D 683, and which depicts him as a bearded soldier, in Roman dress, wearing a cuirass and toga On a marble table at one side of this mosaic there is a Latin inscription which reads in English 'To St Sebastian Martyr, dispeller of the pestilence In the year of salvation, 680, a pernicious and severe pestilence invaded the city of Rome It was of three months duration, July, August and September Such was the multitude of the dead, that, on the same bier, parents and children, husbands and wives, with brothers and sisters were borne out to burial places, which everywhere filled with bodies, hardly sufficed In addition to this, nocturnal miracles alarmed them, for two angels, one good and the other evil, went through the city, and this last bearing a rod in his hand, as many times as he struck the doors so many mortals fell in those houses' (It was this pestilence and this legend that provided Delaunay with the subject for his painting)

St Sebastian was one of the most popular saints in mediaeval art, and there are many paintings of him, most of which depict him in the first stage of his martyrdom A most interesting feature of his treatment in mediaeval art is the gradual transformation that he undergoes, during the passage of the centuries, from the bearded Roman soldier, probably a man approaching early middle age, to the radiant, god like youth, the Christian equivalent of the pagan Apollo The chief plague saint throughout Western Europe from the time of the Great Pestilence onwards was St Roch, who may have supplanted St Sebastian in that connexion—Prof J F D Shrewsbury, M D, The Saints and Epidemic Disease, *The Birmingham Medical Review* No 7-8, Winter, 1956

Bright and Early

They woke me up at half past five
To see if I was still alive

They came again at six o'clock
To see how I had stood the shock

At half past six they brought a basin
For me to wash my hands and face in

At seven o clock they came and said
We ve got to sweep beneath your bed

At half past seven they said to me
Perhaps you re ready now for tea

The doctor may be round at ten—
Don t disarrange your bed till then

Christopher Pulling Bright and Early, *St Bartholomew s Hospital Journal*, February, 1957

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ROLE OF THE COMMUNITY HOSPITAL IN CONTINUING EDUCATION—THE HUNTERDON EXPERIMENT

Edmund D Pellegrino, M D, Flemington, N J

• *For postgraduate medical education to be most effective, especially for the rural practitioner, it should be continuous and should be carried out in relation to individual patients in the community hospital. The community hospital must become an educational institution, with the local practitioner as a participant in an interchange of ideas between himself and the specialist. In one area, relatively devoid of industry, there has been a translation of the atmosphere and techniques of a university teaching hospital to a community rural medical center. This approach to continuing education should be translatable to other communities.*

The ideal of lifelong, continuing professional education has been axiomatic for the worthy physician in every age. Indeed, this is a moral and social responsibility that flows necessarily from the firm relationship that exists between the quality of medical care and the level of education of the physician. It applies with equal force to the teacher and the investigator and, perhaps with the greatest urgency, to the practicing clinician.

In the past 50 years, the range of knowledge in the sciences pertinent to medicine has been expanding at an exponential rate with the result that the realization of this ideal has become an enormous task even for the academic physician and the specialist. For the general practitioner, the problem is complicated by the exigencies of patient care as well as by the obvious restrictions imposed by time and by the limitations of the human intellect.

Physicians who do not have a direct relationship with a medical school or a university teaching hospital supply the greatest proportion of medical care in the United States today. Most of these men are general practitioners, and there is every indication that some type of general or family physician will continue to fulfill the medical needs of rural and semirural regions in the foreseeable future. Some method must be devised whereby this group of physicians may be enabled to improve their skills for the better service of the community and to experience the intellectual stimulation necessary for the continual acquisition of knowledge and understanding of recent advances.

The ever widening horizons of medical information and the changing role of the physician in modern society have produced such demands at the earlier levels of medical education that more of the detailed and specialized knowledge of medical practice must now be obtained in the postgraduate years.

Medical educators have been acutely aware of these problems, and a number of partially effective solutions have been devised. Postgraduate courses, seminars, symposiums, residencies, and scientific meetings have all been multiplied in recent years with the end in view of continuing the physician's education. These methods are reasonable and useful, but they are limited since they are elective and temporary stimulants intermittently applied and are attended by only a small percentage of practicing physicians. Rural practitioners often cannot leave their communities deprived of medical care for a long enough time to attend. These more or less formal methods are essentially didactic and, therefore, result in a passive rather than an active educational process.

Such techniques will continue to be of value, but what is needed more than their further multiplication is a reinculcation of the teaching atmosphere into the daily life of the individual practitioner. For postgraduate medical education to be most effective, it should be continuous and should be carried out in relation to individual patients in the community hospital. If the practicing physician could have informal and easily available guidance at all times at a level equivalent to that of a university hospital, he would be in the best position to improve the care of the patient in his own office, in the home, and in the hospital.

Medical Director and Director of Internal Medicine Hunterdon Medical Center, and Assistant Professor of Clinical Medicine New York University College of Medicine.

Read before the 53rd Annual Congress on Medical Education and Licensure, Chicago Feb 11 1957.

To achieve this, the community hospital would have to become an educational institution in the true sense, a place where an interchange of ideas and experiences can occur between specialist and general practitioner and house staff and where clinical, bedside, and laboratory teaching can become a routine experience If, instead of being isolated from such an atmosphere, the practitioner can be made a participant, the community hospital could provide at least a setting for the pursuit of the ideal of lifelong professional medical education

Description of Hunterdon Program

I would like to describe the experiences of one rural community medical center that has attempted to actualize these concepts in its medical program during the past four years Emphasis will be given to the question of continuing education of general practitioners, although the process necessarily involves the house staff, the medical student, and the specialist

The Hunterdon Medical Center in Flemington, N J, is a 120-bed voluntary general hospital serving a semirural population of about 45,000 persons It is situated midway between New York and Philadelphia in an area, relatively devoid of large industries, deriving its income from poultry and dairy farming and light industry The medical center arose out of the community's basic need for hospital services, since Hunterdon County was previously devoid of such facilities and its general practitioners depended upon adjacent communities for hospital and specialist care

From its inception, the institution has enjoyed a unique history of cooperation between the community and the professional organizations inspired by farsighted local lay leadership An account of the center's genesis and development has been published in monograph form,[1] and this monograph should be referred to for many of the background details that I am not including in this report Some seven years were spent by community leaders in collaboration with the late Dr H L Corwin of the New York Academy of Medicine and with representatives of New York University and the Commonwealth Fund in elaborating the philosophy of medical care that will be described Financial assistance in the form of grants was made possible by the Commonwealth Fund, the Kress Foundation, and the New Jersey State Department of Health The local general practitioners were consulted early and gave their approval to the over-all philosophy several years before any specialists were engaged

Objectives of Program —The objective of the center, briefly stated, is to provide a broad spectrum of modern medical services to a rural community at a level of quality equivalent to that practiced in the university medical centers The distinguishing features of this program can only be enumerated here and are as follows (1) a rural medical center that would provide the widest range of health services—diagnostic, therapeutic, preventive, and rehabilitational, (2) a staff that would make available to the patient the services of both family physicians and specialists working in a cooperative relationship, (3) an intimate association with a university medical school so that teaching and research could be combined with community service for the continuing education of the general practitioner and the betterment of medical care, (4) a group of "geographical" full-time specialists who would confine their practice to the medical center and pool their financial resources, and (5) a plan that would be economically feasible and supportable by local funds

The most crucial, professional aspect of the Hunterdon experiment is the acceptance as a central principle that the optimum care of patients in a rural area can best be achieved by a cooperative effort between the general physician and the specialist It is recognized that each has a unique contribution to make and that the betterment of medical care pivots on the existence of a satisfactory modus vivendi between these groups

Present Operation —The staff at the present time consists of 15 full-time, salaried specialists and 35 general practitioners, who are the family physicians of the community Most of the general practitioners were in practice locally before the inception of the center In addition, there is a part-time specialist staff consisting of 20 men in most of the medical and surgical subspecialties

The full-time specialist staff consists of three internists, two general surgeons, an orthopedic surgeon, pediatrician, gynecologist and obstetrician, otorhinolaryngologist, ophthalmologist, pathologist, psychiatrist, anesthesiologist, urologist, and radiologist Each of these men serves as the director of his respective service, carries out a consultation practice in the diagnostic center, and is charged by the board of trustees with the responsibility of maintaining university standards of medical care in his department The members of the specialist staff do not practice outside the center, they see outpatients on referral from the general practitioner, and they do not make house calls except on his request They are paid by fees received for their professional services and do not receive any support from nonprofessional sources such as income from the hospital for room and board They pool their fees in a professional service fund from which each full-time member receives a salary that is dependent upon his professional rank and not on the type of specialty in which he is engaged This fund cannot be used for nonprofessional purposes

Every general practitioner in good standing in the county medical society may become, and, indeed, has become, a member of the attending staff of the Hunterdon Medical Center The general practitioner is a co-member with the specialist in all activities of the hospital There is no general practice department because it is felt that the organizational philosophy is such that the prerogatives and privileges of the general practitioner can be served without such a department Indeed, he has an equal representation with the specialist in every aspect of the hospital's function, administrative and clinical, so that he enjoys a genuine sense of participation

The general practitioner has privileges on all the major clinical services as determined by the medical board, which is made up of both general practitioners and specialists in equal numbers The general practitioner does not perform major surgery, but rather he concentrates on medicine, pediatrics, normal obstetrics, and minor surgery He may admit patients to any service, and, when he does, he is expected to carry out the traditional duties of the attending physician

Association with Other Institutions.—The Hunterdon Medical Center is a teaching hospital in every sense of the word It is a member of the regional hospital plan of New York University-Bellevue Medical Center and a member of the university's administrative staff sits on the medical board Each of the full-time specialists is a faculty member at New York University so that, in essence, there is available a local full-time teaching staff in the community hospital itself Each full-time man spends one day a week in his respective department at New York University throughout the academic year carrying out a teaching responsibility, attending conferences, and keeping himself abreast of advances in his own field The medical center has a house staff consisting of nine general practice and specialty residents and interns who are rotated from other affiliated hospitals of New York University In addition, there are five to six senior medical students from three schoools—New York University College of Medicine, the University of Pennsylvania School of Medicine, and State University of New York College of Medicine These students spend an elective period of from six weeks to three months at the center Every patient, regardless of economic classification or social status, is a teaching patient in the sense that he is examined and studies are made on him by members of the house staff and that he may be presented at conferences, his management may be reviewed, and he himself may be examined by the chief of the service

Routine on Various Services

Most of the teaching is carried out informally, often individually, and in close proximity to the bedside A clearer understanding of the manner in which this is accomplished and in which it can influence the care of the patient as well as fulfill a learning experience for the practitioner is best gained by a review of the routine employed on the medical and pediatric services

On these services, as on all the major services, each patient is considered to be the joint responsibility of the director of the service and the attending physician The types of patients may be divided generally into three broad categories, and the degree of supervision and guidance carried out by the chief of the service will depend upon the patient's classification Thus, about 50% of the patients have been hospitalized by the family doctor under his direct and immediate care Most of these are treated for the usual illnesses that are well within the ability of the family physician to handle, with occasional guidance and supplementation by the specialist Another 25% are referred directly to the care of a specialist either by virtue of the distance of the physician from the hospital or by reason of the complexity of the problem In these cases the specialist assumes the full role of management of the patient The general practitioner, nevertheless will usually see these patients several times a week and confer with the specialist about their management On discharge the patient is returned to his referring physician with a detailed summary of his hospital stay, together with specific recommendations regarding diagnosis and future management The last 25% of patients consists of those cases in which the family physician, although retaining the attending role, will need and request formal consultation by the specialist because of a difficult diagnostic or therapeutic problem

The director of the service makes rounds every day with his house staff and reviews in detail the studies made by the house staff and the attending physician He sees every patient regardless of who the attending physician may be, and, if necessary, he can take additional history from the patient and examine him He then confers routinely with the family physician concerned when the latter makes his own rounds In this way, the director of the service is able to supervise closely the general work of the service and can establish good standards of medical care with regard to diagnosis, management, and therapy Each patient and his physician, in effect, have informal, routine consultations When there are disagreements in management or diagnosis, these are discussed with the attending physician and not with the patient

The general practitioner on his part is expected to see his patient, write admission and progress notes, communicate his orders to the house staff, and keep himself informed on the patient's progress He carries the responsibility for admission and discharge and for communication with the family and patient regarding diagnosis, treatment, and so forth He bills the patient for his services in the usual manner There is no charge by the specialist for his over-all supervision but he does charge a fee in the usual manner for those patients directly under his care and for all formal consultations

Every effort is made to preserve the role of the family doctor as the attending physician The specialist staff firmly believes in the inviolability of this relationship No major change in management [illegible] by the house staff or the specialist without the [illegible] knowledge and consent of the family physician

On the surgical service the general [illegible] responsible for the preoperative [illegible] care of his patient and the management [illegible] medical problems He may assist [illegible] procedures The teaching emphasis [illegible] nosis the indications for operation [illegible] postoperative complications [illegible] cedures

Family physicians deliver 85% of the obstetric patients in this institution The obstetrician [illegible] is responsible for the establishment of standards of obstetric care He has a knowledge of all [illegible] performed, keeps careful check of the number and kind of services performed, and is available for all obstetric emergencies and complicated cases All the gynecologic surgery is performed by the full-time specialist The teaching technique is similar to that on the medical and pediatric services, and the emphasis is on prenatal and postpartum care, office practice of [illegible] and the physiology of normal labor

To achieve this, the community hospital would have to become an educational institution in the true sense, a place where an interchange of ideas and experiences can occur between specialist and general practitioner and house staff and where clinical, bedside, and laboratory teaching can become a routine experience If, instead of being isolated from such an atmosphere, the practitioner can be made a participant, the community hospital could provide at least a setting for the pursuit of the ideal of lifelong professional medical education

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Every general practitioner in good standing in the county medical society may become, and, indeed, has become, a member of the attending staff of the Hunterdon Medical Center The general practitioner is a co-member with the specialist in all activities of the hospital There is no general practice department because it is felt that the organizational philosophy is such that the prerogatives and privileges of the general practitioner can be served without such a department Indeed, he has an equal representation with the specialist in every aspect of the hospital's function, administrative and clinical, so that he enjoys a genuine sense of participation

The general practitioner has privileges on all the major clinical services as determined by the medical board, which is made up of both general practitioners and specialists in equal numbers. The general practitioner does not perform major surgery, but rather he concentrates on medicine, pediatrics, normal obstetrics, and minor surgery. He may admit patients to any service, and, when he does, he is expected to carry out the traditional duties of the attending physician.

Association with Other Institutions.—The Hunterdon Medical Center is a teaching hospital in every sense of the word. It is a member of the regional hospital plan of New York University-Bellevue Medical Center and a member of the university's administrative staff sits on the medical board. Each of the full-time specialists is a faculty member at New York University so that, in essence, there is available a local full-time teaching staff in the community hospital itself. Each full-time man spends one day a week in his respective department at New York University throughout the academic year carrying out a teaching responsibility, attending conferences, and keeping himself abreast of advances in his own field. The medical center has a house staff consisting of nine general practice and specialty residents and interns who are rotated from other affiliated hospitals of New York University. In addition, there are five to six senior medical students from three schoools—New York University College of Medicine, the University of Pennsylvania School of Medicine and State University of New York College of Medicine. These students spend an elective period of from six weeks to three months at the center. Every patient, regardless of economic classification or social status, is a teaching patient in the sense that he is examined and studies are made on him by members of the house staff and that he may be presented at conferences, his management may be reviewed, and he himself may be examined by the chief of the service.

Routine on Various Services

Most of the teaching is carried out informally, often individually, and in close proximity to the bedside. A clearer understanding of the manner in which this is accomplished and in which it can influence the care of the patient as well as fulfill a learning experience for the practitioner is best gained by a review of the routine employed on the medical and pediatric services.

On these services, as on all the major services, each patient is considered to be the joint responsibility of the director of the service and the attending physician. The types of patients may be divided generally into three broad categories, and the degree of supervision and guidance carried out by the chief of the service will depend upon the patient's classification. Thus about 50% of the patients have been hospitalized by the family doctor under his direct and immediate care. Most of these are treated for the usual illnesses that are well within the ability of the family physician to handle, with occasional guidance and supplementation by the specialist. Another 25% are referred directly to the care of a specialist either by virtue of the distance of the physician from the hospital or by reason of the complexity of the problem. In these cases, the specialist assumes the full role of management of the patient. The general practitioner, nevertheless, will usually see these patients several times a week and confer with the specialist about their management. On discharge the patient is returned to his referring physician with a detailed summary of his hospital stay together with specific recommendations regarding diagnosis and future management. The last 25% of patients consists of those cases in which the family physician, although retaining the attending role, will need and request formal consultation by the specialist because of a difficult diagnostic or therapeutic problem.

The director of the service makes rounds every day with his house staff and reviews in detail the studies made by the house staff and the attending physician. He sees every patient regardless of who the attending physician may be, and, if necessary, he can take additional history from the patient and examine him. He then confers routinely with the family physician concerned when the latter makes his own rounds. In this way the director of the service is able to supervise closely the general work of the service and can establish good standards of medical care with regard to diagnosis, management, and therapy. Each patient and his physician, in effect, have informal, routine consultations. When there are disagreements in management or diagnosis, these are discussed with the attending physician and not with the patient.

The general practitioner on his part is expected to see his patient, write admission and progress notes, communicate his orders to the house staff, and keep himself informed on the patient's progress. He carries the responsibility for admission and discharge and for communication with the family and patient regarding diagnosis, treatment, and so forth. He bills the patient for his services in the usual manner. There is no charge by the specialist for his over-all supervision but he does charge a fee in the usual manner for those patients directly under his care and for all formal consultations.

Every effort is made to preserve the role of the family doctor as the attending physician. The specialist staff firmly believes in the inviolability of this relationship. No major change in management is made by the house staff or the specialist without the prior knowledge and consent of the family physician.

On the surgical service the general practitioner is responsible for the preoperative and postoperative care of his patient and the management of concurrent medical problems. He may assist in major operative procedures. The teaching emphasis is on surgical diagnosis, the indications for operation, preoperative and postoperative complications, and minor surgical procedures.

Family physicians deliver 85% of the obstetric patients in this institution. The obstetrician-gynecologist is responsible for the establishment of standards of obstetric care. He has a knowledge of all deliveries performed, keeps careful check of the number and kind of services performed, and is available for all obstetric emergencies and complicated cases. All the gynecologic surgery is performed by the full-time specialist. The teaching technique is similar to that on the medical and pediatric services, and the emphasis is on prenatal and postpartum care, office practice of gynecology, and the physiology of normal labor.

The same type of continuous informal consultation about individual problems is available with the radiologist, the pathologist, and, indeed, all the other specialists in the hospital not only on inpatients but on the care of patients in the physician's own office The specialist is always available, and some of the most fruitful teaching occurs on the telephone, in the hallway, or over a cup of coffee

The specialists maintain offices in the diagnostic center and see patients there on referral by the family physician Twenty thousand such patients were seen last year These patients are returned to their family physicians with a diagnosis and recommendations for therapy Frequent telephone conversations, usually immediately after the examination of the patient in the diagnostic center, are followed by a formal consultation report Each of these contacts with the general practitioner is actively used as an opportunity for teaching by all members of the specialist staff

Opportunities for Continuance of Education

Informal Education—It is apparent that the opportunities for the continuance of medical education on the part of the practitioner when he is intimately integrated in the framework of such an institution are many and excellent Innumerable occasions are presented for reviewing current medical knowledge and information in the light of the problem at hand This is by far the most efficacious kind of teaching for the general practitioner The discussion of electrolyte problems in acidosis, for example, by means of a lecture usually has little permanent meaning for the busy practitioner A similar discussion, however, about a case of uremia with which he is concerned has greater pertinence and much more lasting value With this kind of relationship, the general practitioners are often stimulated to increase their own knowledge so that they can make a better contribution to the next discussion and improve their own management of the same situation in the future

Another important teaching feature is the indoctrination of the general physician with the concept of the hospital as a center for community health services Thus, he has ample opportunity to have contact with the whole breadth of ancillary medical services that are now available and necessary for optimum medical care, such as the departments of social service, public health nursing, psychology, rehabilitation, occupational therapy, and so on Also, he is daily introduced to some of the preventive health services not ordinarily found in a rural hospital For example, he is made familiar with the community educational activities carried on by members of the center staff, such as classes in weight control, parent education, and adult education and classes for diabetics Multiple screening is carried on in the evenings and reports are sent to the general practitioner All the community voluntary health agencies are housed in the center A child guidance service is available to which the general practitioner is able to refer his patients for diagnosis and management, and, as always, his opinion is solicited as an important part of the management plan A mental health unit is active under the direction of the psychiatrist, and the preventive aspects of psychiatry are emphasized as well as the importance of emotional factors in every disease process

Further, there are many exemplifications of the modern need for group thinking about the solution of complicated medical problems The practitioner becomes a member of many discussion groups concerning joint planning of patient care and is called upon to make contributions by virtue of his knowledge of the patient as an individual and his familiarity with the patient's environment

The general practitioner is exposed daily to the inquiring and stimulating minds of young house staff members and medical students He is encouraged to discuss his patients, and they are encouraged to ask him questions about diagnosis and management Often the general practitioner will join in making teaching rounds with the house staff and take part in the discussion of his own cases and those of other practitioners

On all services, particularly the services of medicine and pediatrics, the practitioners are constantly impressed with the basic science information necessary for the proper understanding of recent advances in clinical fields In every teaching activity, particularly those conducted at the bedside, the opportunity is grasped for emphasizing this type of information as being essential in the rational practice of medicine today Presentation of this material is made a natural part of every clinical conference

Formal Teaching—We shall speak only briefly of the more formal teaching activities since they are not peculiar to this institution and are considered less important in the continuing education of the practitioner A simple enumeration will suffice Each major clinical service has a weekly conference planned around patients and the problems of current interest Each Saturday clinical services rotate in presenting a correlative clinical conference, again using case material in the hospital, to the entire staff General practitioners are often placed on the program and asked to discuss the care of their patients Clinicopathological conferences are held monthly Didactic sessions in which there is emphasis on the pathophysiology and basic science substratum of disease entities are held once a week by the medical services

Many more instances of the formal and informal teaching activities of the Hunterdon Medical Center could be given For example, the participation of the general practitioner in the monthly medical audit of his own cases and those of the specialist staff and his presence on important hospital committees are excellent ways of acquainting him with the standards necessary for a good quality of medical care It is virtually impossible for a general practitioner serving as a member of the record committee, pharmacy committee, house staff committee, tissue committee, or others not to be influenced in the management of his own cases The necessity of objective, mutual, and constructive evaluation of the quality of medical care by one's colleagues is thus emphasized and made an essential part of practice

Comment

It would certainly be imprudent for those of us directly involved in this experiment to regard it as completed and of proved value in postgraduate education Our report is one of progress, and we can say that there is every indication that the method is certainly worthy of consideration as at least pointing to a solution of some of the problems of continuing education While a more objective evaluation of the merits of the Hunterdon experiment would be best made after many more years have elapsed, we think that there are a number of indications at present showing that its basic postulates are valid

There has been an increasing usage of the inpatient and outpatient facilities by the general practitioner to the point that the need for expansion is pressing Practically all the general practitioners and specialists associate on a first name basis, and social fraternization between both groups is a rule rather than an exception Personal relations have not been strained by this cooperative arrangement Most of the practitioners have accepted the idea of supervision and now voluntarily seek out the chief of the service on rounds to ask his opinion and recommendations regarding the care of the hospitalized patient It is worthwhile to note that, in the four years of the operation of what would appear to be a finely balanced scheme of professional relationships, there has not been a single situation in which a difference of opinion was not resolved by discussion between individuals The medical board has not been called upon to arbitrate a single dispute With very few exceptions, the patients have accepted examination by the house staff and supervision by the chief of the service They have not felt that their relationships with their own physicians were being disrupted thereby Community support in annual drives has been excellent

It is generally felt by the full-time specialist that the informal method of teaching has resulted in an improvement in the care of patients in the hospital and in the general practitioner's office Many of the general practitioners need progressively less direction and guidance in the care of the common medical, pediatric, and obstetric problems The full-time specialist staff has been well able to support itself on fees obtained through consultations and inpatient care

The process has not been a unidirectional one The specialists, too, have been educated by the association and have broadened their own experiences by contact with the general practitioners They have learned to respect and appreciate the difficulties in his position and the magnitude of the demands upon his time and energies They have had to continue their own educational progress by their weekly visits at New York University, by the preparation of their own teaching assignments, by the interchange of ideas with specialists in their own and other fields, by the conduct of research, and by the requirements of frequent consultations with practicing physicians in the solution of difficult clinical problems

We have learned that the general physician has a definitive role in rural medicine, is desirous to improve the care of his patients, and is eager to be taught as long as it is done in a patient, informal manner and without pretension We cannot predict the effect of this plan on the ultimate content of general practice in this community, but we feel that its presence will serve as an effective antidote to the 'Jack-of-all-trades' concept of general practice In our training of residents for general practice, we emphasize the idea of the family physician, based firmly in internal medicine, pediatrics, psychiatry, and possibly normal obstetrics It is men with this orientation who will probably provide the bulk of medical care in our area in the future, and the plan described should be equally effective in their continuing education

It would be misleading to imply that there have been no problems in this period of four years To make this concept work smoothly has required a cooperative spirit on the part of specialists, general practitioners, administration, board of trustees, and community—all of whom have been willing to yield some of their traditional sovereignties to achieve the objectives of optimum patient care It has been clearly demonstrated that the specialist staff would not be a threat to the economic status of the general practitioner The possibility of undermining the professional status of the general practitioner was foreseen early, and this has been diplomatically avoided by the specialist staff and by the practitioners themselves

A danger that has not materialized lies in the potentiality for such an arrangement to induce such a sense of security in the general practitioner that he will depend too heavily on house staff and specialist to carry out responsibilities that are properly his own

Summary

We have described four years of experience at the Hunterdon Medical Center, Flemington, N J, in an experiment in medical care and education that features the translation of the atmosphere and techniques of the university teaching hospital to a community rural medical center The essence of this attempt lies in the fullest exploitation of the teaching potentialities of a community hospital by the integration rather than the isolation of the practitioner, by the effective establishment of a local full-time teaching faculty, and by emphasis in continuing, informal, individualized postgraduate education

We think that this program offers some approach to a solution of the dilemma of continuing education It appears to be practicable and should be translatable to other communities, with certain modifications This method like all others can provide only an opportunity and a stimulus The ultimate hope lies in the orientation of the physician as a perpetual student, deeply ingrained with an attitude of sustained scholarship No community hospital program can substitute for this It can only offer an atmosphere in which the ideals of scholarship can flourish

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CHALLENGES PRESENTED BY AND THE IMPORTANCE OF POSTGRADUATE MEDICAL EDUCATION

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• *Many resources are now available to the physician who wishes to keep up to date The extent to which he utilizes them varies, he may neglect them entirely, or select what he thinks most suitable, or join a group in which attendance at certain meetings or courses is required There is evidence of a dearth of programs of postgraduate education specifically designed for general practitioners, and evidence that some of the programs given have left much to be desired The field bristles with challenges*

The very definition of postgraduate medical education adopted by the Council on Medical Education and Hospitals [1] establishes objectives The Council report includes in postgraduate education 'those educational activities engaged in by persons possessing the degree of Doctor of Medicine which are primarily designed to *keep them abreast of their own particular field in medicine* " These activities concern basic medical education as well as new developments in the field I shall discuss the importance of and challenges presented by this area

Of importance little need be said We are discussing the techniques and procedures that prevent decay in practice and that supply to the physician new advances in medicine at the consumer's level and the means of supplying the fresh advances for patient benefits To accomplish these ends the physician is, and should be, a lifelong student Indeed, medical education is a continuing process from undergraduate to graduate and finally through postgraduate phases The importance of education is obvious

Types of Programs

True, the problems change in each of these areas, and the program for the postgraduate must be as clearly defined as are those for the undergraduate and graduate [2] Here are the challenges! The field bristles with them Vollan's report [2] indicated that the physicians he surveyed gained their continuing education in five general ways—by reading the medical literature, by professional contacts, in hospital meetings, in medical society meetings, and through attending postgraduate courses The first three of these ways accounted for 90% of the time spent, the remaining two, 5% each

In undergraduate as well as graduate medical education, the student groups involved are fairly uniformly graded and the programs generally require full-time study In the postgraduate field these features, which lead to a relatively easily planned program, do not exist Each man's problems, needs, opportunities, time, stimulus, background of experience, and training vary widely Each man continues his education while in practice by the many means already mentioned

Reading the medical literature, contacting associates, consultants, and representatives of pharmaceutical companies, and attending hospital meetings are parts of routine activities in practice, are highly individual activities, and are conditioned by the motivation and attitude of the physician There is little that is compulsory, and each physician sets his own pace and seeks his own level Much help and guidance are needed here Experiments in the use of tapes, films, film strips, television, and correspondence courses to aid the physician in selecting and sorting out available literature show great promise Much remains to be done Even the additional methods of postgraduate training, attendance at medical society meetings, and especially attendance at more formal postgraduate courses are not compulsory, and again the physician sets his own pace The only group that has met the challenge of required training is the Academy of General Practice, which demands attendance at approved meetings and courses as a requisite for continued membership

Coordination of activities must be systematically planned In my own state of Missouri, for example, programs of county and district medical societies are planned in cooperation with the activities of the Academy of General Practice to provide effective scope and coverage Local hospital staff meetings and programs should be correlated and interrelated so that each physician can, by choosing state and national meetings to attend, along with selected refresher courses, tailor an over-all program to fit his needs Local guidance is important and is a vital need that remains unmet Stimulating the physician to participate actively in hospital and medical society meetings, by compulsion if necessary, is a tremendous challenge on the local front, where effective teaching talent is not always available Planned self-instruction of groups in local and regional institutions, with some outside help and guidance, has not generally progressed beyond the level of casual and infrequent reports at staff meetings When the physician-student actively participates and verbalizes, when he must visualize and organize, the learning process jumps in leaps and bounds In the following papers from the Conference on Postgraduate Medical Education, programs and experiments in this field and a number of facets of this tremendous problem will be considered These papers describe partial answers to the challenge of synthesis, organization, and integration of programs to round out and complete the needs of the practitioner

Need for Flexible Program

In the recent study of general practice in North Carolina by Peterson and his associates,[3] the number of formal postgraduate exercises attended did not correlate with the quality of practice observed Acquisition of journals did vary directly with the qualitative

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Professor of Medicine and Chairman, Department of Medicine, University of Missouri School of Medicine

Read before the 53rd Annual Congress on Medical Education and Licensure, Chicago, Feb 11 1957 assessment of the physician's practice Some superior physicians took very little formal postgraduate education, and some of the poorest were very assiduous in this respect What is wrong here? The analysis beyond the record of the hours devoted to such activities is not clear Is it in the courses offered, in the reasons for attendance, in the men themselves, or in some other sphere? We all know too well some of the shortcomings of many of the formal courses given Ellis[4] has pointed out that the character of most instruction leaves much to be desired and that instruction is often carried out by techniques that were considered outmoded for medical students 50 years ago Undergraduate and graduate programs have "captive' subjects The student must learn mechanisms, items for which he might profess little interest and even direct antagonism, and aspects of health and disease that he dislikes, for he must qualify, pass examinations, or get official credit for licensure and certification, however, this is not so with the postgraduate He can skip what does not interest him, avoid the dull lecturer, walk out if unimpressed, and return only if, by his own evaluation and standards, he feels like doing so

Our most important challenge is to meet this heterogeneous, fluid, ever changing problem with a correlated, flexible, adaptable program that can be molded to fit the needs of the numerous groups concerned We must understand the persons with whom we are dealing and give the individual what he needs and wants Practicality does not permit us to go back to the choice of students entering medicine, to choose those who will be eager for continued study and who would strive to get it That area is being diligently explored Even if we go back and make the attempt, we really do not know how to choose students in this respect We must take the groups available and sell them the right product We have no monopoly of the physician's time as we have in the other fields of medical education We must interest him, compete with indifference, and sell him a product he will buy and with which he will be so satisfied that he will return for more Selling soap or automobiles could be much easier!

In respect to postgraduate education, there are three groups of physicians those in one group go to any means for continued education, those in another shun any opportunities even when given them, and those in a third large group will take advantage of the opportunities if easily available or if put within reasonable reach It is a great challenge to reach those needing the program The Vollan report[2] stated that less than 5% of the hours of programs offered were specifically designed for general practitioners, who make up about half of the potential consumers of postgraduate education Does this show that the challenge is being met?

Status of Postgraduate Programs

The blueprinting of the over-all needs for the area and the working out of an integrated program would make it possible for physicians to organize their own schedules to include refresher education as a part of their regular programs[2] To improve on didactic methods, choice of other techniques of presentation, such sessions as group discussion, workshop exercises, casework, and panels, especially in the physician's own institutions and geographical area, require skillful planning for effectiveness Personnel, time, and finances of educational units are not adequate for continued education of the physician Inspection and approval of formal courses to insure adequacy do not exist The challenge is far from met The postgraduate program is a stepchild to the other programs that have attained, despite the sharp controversies concerning approach and content, a tremendously high plane Postgraduate programs—the training programs designed to keep the physician's knowledge adequate over the 30 to 40 years of his practice—still do not have their rightful place beside the other programs What a challenge this is!

I have already spoken of the skills and salesmanship necessary in the teaching of this critical and sensitive group ~~Physicians leave their~~ practices, ~~give up in~~come, and deny services to their patients to attend the sessions set up for them The sessions must be worthy of this sacrifice Yet, in a large part, formal postgraduate education has not achieved a place in teaching institutions equal to the needs Too often the programs are incorporated into the operation established for undergraduate or graduate programs and are looked upon by the institutions as an added burden These inadequacies are reflected in the teachers Indeed, interest shown by the teacher is often lukewarm, which reflects in student response This is understandable if teaching these courses is forced upon the instructor as an added job—an activity he does not want and that he does not consider an integral part of his work—and as a duty taking time he really wants for research and writing He often does not understand his audience or indeed the problems his pupils face Frequently he has never faced them himself He may expound on techniques of pH determination or on the management of acid-base balance not available to 5% of those to whom he is talking and not understood by many more He may describe details of operative procedures and leave the group entirely baffled Sometimes he bypasses the real problem confronting him because of lack of success with the techniques used I recall one such professor who abandoned the course in his field for general practitioners These were the reasons, which, of course, he did not realize Still, he was successful in use of the techniques of graduate medicine in refresher courses for specialists in his field, but he was not reaching the groups really needing the instruction

Many teachers are willing to take exercises, such as formal lectures to large groups, prestige appearances, presentations at society meetings when they are 'the program," or dissertations to groups from which potential referrals may come Such exercises have their place, but, if this is the postgraduate program, it is but paying lip service to the problem

Please do not believe from the above remarks that I consider all to be chaos in this field There are institutions dedicated to the problem where postgraduate education has taken its rightful place and there are teachers with enthusiasm and understanding both in these institutions and in those dedicated basically to undergraduate and graduate instruction, but these men are too few We have the great challenge of finding, training and developing teachers skilled in meeting postgraduate groups, poised in handling the difficult individuals and awkward situations in discussions, experienced in the problems outside medical centers, adept in choosing proper material for demonstrations, lectures, seminars, and panels, and interested and concerned about postgraduate education as an important and integral part of their daily responsibilities

Finance is a great challenge Undergraduate programs suffer from inadequate funds The undergraduate pays one-third or less of the institutional cost of his education, someone else must pay the remainder Postgraduate education is still more complex Travel is more costly Groups are small and their programs intermittent The doctor loses income at home when he is away Can and should the postgraduate course pay its own way? If the answer is either yes or no, how is the challenge of finance to be met?

Summary

The importance of postgraduate programs is undoubted The field bristles with challenges I have pointed up some of those that I consider of major importance There are many others Some of these problems rest upon the many facets of the program and the greatly varied needs and interests of the postgraduate student In undergraduate and graduate programs, the scope is fairly well defined This is not true in postgraduate education It is a heterogeneous field Regional needs vary and planning and correlation are very important How do we reach those with the greatest need? How do we improve self-education on the home front? What of compulsory programs? How do we coordinate and synthesize a complete program when there are such varied needs, agencies, or areas of teaching? Some courses must be long, some short, some on simple techniques or problems, some on general fields, some in specific areas, some concentrated, some intermittent, and some inside and some outside the institution Where do we get worthy interested teachers? How do we solve the problems of responsibilities and finances? What of standards, inspection, and approval of formal courses? All these problems combine with the need for sandwiching programs into and making them part of the activities of practice Much of this is responsible for the lag in the elevation of postgraduate education to its proper place alongside the other fields of medical education To solve these problems is the great challenge Postgraduate education must become of age" We must face up to the problems

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CURRENT ACTIVITIES IN POSTGRADUATE EDUCATION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

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• *An ad hoc advisory committee was appointed a year ago for study of useful approaches for improving the quality of postgraduate courses and other educational programs for physicians The initial recommendations of the Committee to the Council on Medical Education and Hospitals is publication of a statement of objectives and basic principles These include emphasis on use of clinical facilities, more effective educational methods, and the need for appraisal of courses, each of which is briefly discussed in this paper*

In order to best explore the problems in the field of postgraduate medical education and useful approaches to their solution, the Council on Medical Education and Hospitals decided that it should have the advice of leaders in the profession having a diversity of backgrounds in and viewpoints on practice and medical education An *ad hoc* advisory committee on medical education was appointed a year ago

Postgraduate programs of hospitals and medical schools, sometimes in cooperation with medical societies, involve groups of people and methods that have close analogies with undergraduate and graduate medical education In fact, all three phases may, and often do, involve the same educators As a consequence, in planning and talking about the continuing education of physicians, we are dealing with a part of medical education as a whole rather than with some unique and intangible kind of thing It is true, as Dr William A Sodeman said (page 366), that the practicing physican-students are more mature and present other differences because of their practices and family responsibilities Even so, it would seem that the vitally effective elements of undergraduate and graduate medical education might well apply to the postgraduate aspect

Need of Reappraisal

This kind of thinking has not characterized some of the programs labeled as educational for physicians Because of lack of considered objectives, lack of coordination with the parent body of medical education,

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Assistant Secretary, Council on Medical Education and Hospitals of the American Medical Association

Read before the 53rd Annual Congress on Medical Education and Licensure Chicago Feb 11 1957 and, generally, lack of applying the lessons already so painfully learned in the other phases of medical education, the postgraduate part has grown like Topsy, with the inevitable and confusing results of jerry-building As Dr Osler Peterson and colleagues[1] concluded in their recently published analytical study of general practice in North Carolina The nebulous influence of postgraduate study on the physician's performance suggests that a reappraisal of the methods employed in postgraduate courses is overdue [2]

Peterson and colleagues are too kind in using the word 'reappraisal' Too often there was never an initial 'appraisal' of the methods Considering that their study was limited to a relatively small number of physicians in a single state and that it lumped together all kinds of medical meetings with postgraduate courses, we can use his conclusion as being more a straw in the wind than a definitive indictment However, scrutiny of the methods employed was a part of the Vollan survey[3] as well as of the deliberations of the Advisory Committee on Postgraduate Medical Education of the Council on Medical Education and Hospitals In particular, the Committee felt the reservation so well expressed by Dr Samuel Johnson when he said, People have got a strange opinion that everything should be taught by lectures [4] One might say, though, as Dr David Sinclair, the British educator, observed, 'The visiting expert is in the American tradition and so is the capacity to sit and be edified by a variety of long-winded discourses' [5]

Location of Postgraduate Education Programs

During the initial deliberations of the Advisory Committee, it was acknowledged that this field involves as sponsors medical schools, hospitals, and medical societies It also became clear that adequate medical education requires clinical facilities with patients, laboratories, libraries, conference rooms, and audiovisual materials—in short, the usual facilities of a medical school or a teaching hospital Therefore, it seemed reasonable for the Committee to recommend that hospitals and medical schools should be the location of postgraduate educational programs This would mean that medical societies could function best in this field by working cooperatively with hospitals and medical schools in the area, with these institutions serving as the locations of any primarily educational programs—that is, in fact, the way the American College of Physicians functions in its courses each year throughout the United States

In this regard, the present interest of medical schools is of importance Last summer, as part of the annual query by the Council of medical schools in the United States for information needed to prepare the Annual Report on Medical Education, a special questionnaire on the postgraduate phase was sent to the dean of each school In response to a question about the sense of responsibility that the school felt regarding the continuing education of physicians, 72 medical school faculties expressed in various ways some sense of responsibility Of these, 40 schools' questionnaires contained a statement that indicated that postgraduate medical education was one of the major educational activities of the school, along with the fulfilling of the responsibilities for undergraduate and graduate medical education [6] Dr James W Colbert Jr, chairman of the committee on continuation education of the Association of American Medical Colleges, in his report for the committee to the 67th annual meeting of the association last November, said in part, 'The continued education of the physician is best assured by the establishment of an intellectual and educational environment supporting the responsibility of patient care Such an environment will certainly require academic leadership and thus the role of the medical school will probably become greater rather than less' [7]

Statement of Objectives and Principles

It also became apparent to the Advisory Committee that a statement of the objectives and basic principles of postgraduate programs needed to be prepared as a first step in evolving a plan of action It seemed impossible to make sensible recommendations to the Council of ways it could be of maximum assistance in this field unless the purposes or objectives of this field were more clearly defined Assuming the correctness of the hypothesis that this field is a part of medical education and can benefit by applying what has been learned in developing undergraduate and graduate programs, the Committee thought that this experience could be distilled into a number of general principles as a guide for those responsible for postgraduate medical education Such a document has been developed

The first recommendation that the Advisory Committee made to the Council was that a brochure containing the objectives and basic principles of programs of postgraduate medical education be prepared and submitted to the Council for publication and general distribution Its purpose would be to provide a basically sound approach, based on the common denominators of medical education, that could be applied to the various formats and types of postgraduate programs for their improvement The Council on Medical Education and Hospitals approved the document for submission to the House of Delegates of the American Medical Association in June, 1957 The interested groups that Dr Victor Johnson mentioned—including the Association of American Medical Colleges, the American Hospital Association, the American Academy of General Practice, the American College of Surgeons, the American College of Physicians, the Advisory Board of Medical Specialties—are being consulted in this first step, as they will be in later steps, in the Council's course of action, because only by going forward cooperatively and with generally agreed upon approaches can the challenges in this field be met

If you will bear in mind that the guide has not yet been approved by the House of Delegates and so cannot be taken as an official statement of the American Medical Association, I would like to go over with you the present draft of the statement of objectives and basic principles Please assume that, after each principle, from a paragraph to more than a page of explanatory material appears, which indicates in a general way how the principle could be applied by hospitals, medical schools, and medical societies in their programs.

Parenthetically, please note that the word "program" has been used throughout the guide to denote not only a formal postgraduate course or series of courses but the educational activities sponsored by community hospitals, often in cooperation with medical schools. A basic document such as this should be flexible enough to apply to any primarily educational program planned by groups of physicians, including supplementary and experimental programs with use of television and audiovisual aids. The programs to which this statement is not intended to apply are medical society business and social meetings and conventions, because they cannot be considered primarily educational programs.

The guide in its present draft gives the following objectives of postgraduate medical education:

> The ultimate aim of postgraduate medical education is to make it possible for each physician to use in his practice the modern medical knowledge that continuously becomes available. Adequate professional growth ensues through the participation of each physician in suitable programs of continuing education in addition to his own experience and reading.
>
> Postgraduate educational programs should as a result of current advances in the basic science and clinical fields favorably augment and modify an adequate initial education. These programs should make possible the acquisition of such new skills in the field of original competence as scientific advances require. Furthermore, they should strengthen the habits of critical inquiry and balanced judgment that denote the truly professional and scientific man.

If the following basic principles seem simple, do not be surprised. Truly basic principles usually are simple. There is no attempt to mystify—rather the idea is to guide by pointing out the broad essentials. The essentials as given in the guide are as follows:

> 1. There should be administration of the postgraduate program by a responsible person having the respect and support of the professional staff of the organization or institution, an administration having as its goal an educational program in the highest interest of the medical profession, as epitomized in the objectives previously stated. There should be continuity of administration, evidence of careful advance planning of the program, and a suitable voice by the teaching staff in the postgraduate program.
> 2. The budget should be adequate to the educational program undertaken and to its continuing improvement.
> 3. The teaching staff should consist of physicians and their associates of proven ability, training, and experience with an interest in and dedication to the development of carefully planned educational programs in the best current intellectual and professional interest of the participating physicians.

I would like to quote a few points from the explanatory material pertaining to this principle:

> There should be an adequate number of instructors for each program to permit the use of the more effective participative methods of education. In the other phases of medical education and in other fields of education, the number of students per teacher becomes much smaller as education becomes more advanced. This would seem to have significant implications in postgraduate medical education.
>
> Instructors participating in any course or other educational program should be capable of providing explanation of the basic science mechanisms of health and disease and their clinical applications in the prevention, diagnosis, and treatment of disease. The essence of professional knowledge, as compared to purely vocational, is understanding of the basic science to provide a "know-why" as well as a "know-how" of the practice of medicine.
>
> The resident staff of a hospital and particularly of a community hospital may form a valuable part of the teaching personnel of a postgraduate program.

To return to the principles:

> 4. The curriculum of any postgraduate medical education program should be the result of thoughtful planning well in advance of the date scheduled for the beginning of the program.

With reference to the words "thoughtful planning," the explanatory material adds in part,

> Thoughtful planning also means that the content of courses and of other programs should be based upon the demonstrated needs and wishes of the physicians of the region, as well as upon advances in medicine. The means of ascertaining the needs and wishes of physicians will vary. Of great assistance is a close and cordial liaison among medical societies, medical schools, and hospitals of the region.

The explanatory material on curriculum also states:

> Attention to the newer knowledge of the basic mechanisms of disease and of treatment should be a part of postgraduate programs along with the more immediately applicable information.

> 5. There should be available facilities that encourage participative methods of education. Though lectures by professionally well qualified speakers are a means whereby physicians obtain information, it is felt that such a method of education cannot alone provide an adequate postgraduate program in the context of modern education. The facilities mentioned above should include the availability when appropriate to the content of the program of patients and their case records and other necessary records such as roentgenograms, electrocardiograms, surgical pathology tissues and/or reports, laboratories, library, conference rooms, classrooms, and audiovisual aids—all adequate for and suitable to the specific program.

This principle simply elaborates the conclusion of the Committee that I mentioned earlier, that hospitals and medical schools are the proper places for medical education, including the education of the physician in practice. The word "alone" with reference to lectures indicates that they have a place but cannot carry the whole burden of education. The explanatory material states:

> A hotel ballroom or a lecture hall used alone and isolated from a hospital or medical center does not provide those essential facilities needed in modern medical education whether it be for students working toward the M.D. degree or for physicians in practice enrolled in a course or participating in other primarily educational programs.

The principles continue as follows:

> 6. The educational methods should include more than a series of lectures or panel discussions in which the physicians are primarily passive recipients. Methods requiring active participation include live clinics and ward rounds, seminars, open question periods, laboratory work, and study of patients under supervision.

Regarding principle 6, I will say only that it is followed by the longest explanation because the Advisory Committee felt this to be a major problem area.

> 7. Methods of evaluating the effectiveness of postgraduate programs should be developed.

A very brief paragraph of explanatory material encouraging experimentation in ways of better accomplishing such evaluation and suggesting the educational and evaluative implications of medical audits follows principle 7

> 8 Each physician's reward for participation in postgraduate medical education always should be his improved ability to care for his patients and the stimulation of his own spirit of intellectual adventure

There is a short paragraph of explanation under this final principle that I would like to quote

> Any certificate granted at the completion of a postgraduate program or series of programs should not be or resemble a diploma attesting to special skill or be reasonably susceptible of such interpretation Postgraduate medical education is not intended to provide an educational experience adequate for beginning the practice of a specialty or subspecialty That is the concern of graduate medical education, that is, residency and fellowship training Therefore, it would be inappropriate for any document attesting to postgraduate study to be subject to misinterpretation

These are the principles, but by no means has the complete text of the document been given This general guide is the first step in the course of action recommended by the Advisory Committee to the Council and endorsed by the Council It is quite possible that more specific guides may be developed based on experience with the basic guide and on the wishes of the profession

Appraisal of Postgraduate Courses

The second recommendation by the Advisory Committee was that the Council give consideration to appraisal of postgraduate courses and apply the results of such appraisal to the preparation of the annual list of courses published in THE JOURNAL of the American Medical Association This would be consistent with the Council's policies in listing medical schools, internships, and residencies—policies that have been productive of real educational advances

Such an appraisal would also seem desirable in itself to indicate those courses that are educationally worthy of the physician's time and money It has been shown that courses of high quality stimulate physicians to seek such education while a poor course is most discouraging to a physician's further participation and furnishes justifiable cause for his disappointment at the organization, quality, content, or methodology

A further reason for advocating a continuing appraisal of postgraduate courses would be that such a plan would almost surely attract thoughtful attention to the basic guide as well as provide an additional incentive for the sponsors of programs to improve their offerings The present annual list of unappraised courses and miscellany actually may be injuring the chances of raising educational standards in this field by giving tacit approval to some unworthy activities Methods of appraising courses and other postgraduate medical educational programs are under active study by the Advisory Committee and by the Council itself, and the advice of the interested groups already mentioned will be sought

Means of Increasing Participation in Postgraduate Education

A third step recommended to the Council by the Advisory Committee poses perhaps the most thorny problem of all It is the recommendation that suitable means be developed for increasing the number of physicians who regularly participate in programs for their continuing education

I suppose that, in an ideal culture, no outside stimulus, incentive, or recognition would be required because each physician would eagerly seek out, at any personal sacrifice, every available means of continuing his education solely because of an inner urge and an intellectual dissatisfaction with the *status quo* of his knowledge and skill I do not expect this millenium to occur overnight I do hope that a wider recognition of the important relationship of postgraduate medical education to the quality of medical care, coupled with an increased educational stature of the available programs, will attract many more physicians However, the emphasis should be on quality To date there has been too much attention given to quantity alone—to the number of physicians attending and the number of courses—and far too little attention given by many persons to the educational quality of the programs While the availability of a sufficient quantity of meritorious educational opportunities is the ultimate goal, it would seem that attention to the quality of each program would best insure our reaching that goal

It is probable that inculcating habits of scientific thought in medical students today will cause them to use their educational opportunities tomorrow and throughout their careers so that their knowledge will continue to be current As Sir Henry Cohen, professor of medicine at the University of Liverpool, said at the first World Conference on Medical Education, Above all, since medical knowledge is ever expanding, the undergraduate medical curriculum must favour the acquisition of enduring habits of work and thought and enthusiasm for study, so that the doctor shall remain a student throughout his professional life'[8] It seems to me that the future of postgraduate medical education lies with and should be planned to interest those physicians now recently out of their graduate medical education so that their competence in practice will continue at a high level as judged by the then current knowledge and skills

This matter of finding means of stimulating participation by more physicians in postgraduate educational programs year after year will come under more active study by the Advisory Committee of the Council in consultation with other interested groups However, *the necessary preceding step would seem to be the* giving of attention to the quality of the postgraduate medical education available A general improvement in quality could, in itself, provide sufficient incentive, especially to the physicians who have graduated more recently

Collection and Dissemination of Information

A fourth step recommended by the Advisory Committee is that the Council on Medical Education and Hospitals act as a central point nationally for the col-

lection and dissemination of information in this field The Council has been increasingly active in this capacity in the past few years

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UNIVERSITY OF KANSAS PROGRAM IN POSTGRADUATE MEDICAL EDUCATION

Mahlon Delp, M D, Jesse D Rising, M D
and
William D Nelligan, B S, Kansas City, Kan

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The creation of the department of postgraduate medical education of the school of medicine, in 1945, served to stimulate expansion of all postgraduate activities This step represented the attainment of a degree of maturity in the administrative structure, permitting organized planning, unified administration, and development of policy based upon sound principles in medical education Although chief responsibility for the entire program rests immediately upon the university and the medical school, the state medical society still retains co-sponsorship through its committee for postgraduate medical study The whole program of postgraduate medical education in Kansas is an integral part of the Kansas plan for rural medical care, formulated in 1948

This is the historical background of one program of postgraduate medical education, which may be considered a prototype of programs involving a medical school and a state medical society The barest fundamentals in any educational project however, are a student, a teacher, and a curriculum, therefore, postgraduate medical education may be, and is, carried on in a successful manner using other methods

Organization

The topmost administrative body of the University of Kansas is its board of regents, to whom the chancellor is directly responsible He and the deans of the various schools formulate policy in an administrative pattern common to most state universities The dean of the medical school, with the aid of his faculty guides activities and controls policy within the school Postgraduate medical education is designated as a distinct function of a separate department within the medical school As such, it has its own responsibilities, prerogatives, and the usual amount of autonomy Department administration is carried on by a chairman and an executive director

The Kansas Medical Society has an administrative structure similar to other such state organizations It has a committee for postgraduate study Working directly with the medical school is a joint advisory committee composed of the representatives of the committee for postgraduate study of the medical society, the chairman of the committee on medical schools, the chairman and one member of the committee on rural health, one official from the Kansas State Board of Health, one official from the Kansas Academy of General Practice, and additional selected persons These interested persons join with the chairman of the department of postgraduate medical education and the dean of the school of medicine as an actual working and policy-making group The term "working" is used advisedly, because this group annually spends from 8 to 10 hours in session, discussing the past year's activities and problems facing the department and actually building in outline the content and format of programs for the ensuing year

It might seem that the organizational structure is too bulky and loosely bound for good administration, but experience has proved this to be not so The program administration, in the last analysis, falls directly and properly upon the medical school The medical school also supplies the other essentials curriculum, faculty, facilities, budget, educational methods, and evaluation to the enterprise

Objectives and Purposes

The objectives of this program, as outlined in our last annual report, are—as might be expected—similar in general terms to all other such programs Medicine has become so complex that it is obviously not possible to provide a completely detailed and sustaining knowledge concerning every medical and related discipline during a four-year period of study Consequently, four years of undergraduate medical study, internship, and even residency supply merely the foundation for a lifelong study of medicine Continuation of study aimed at the physician's acquiring new knowledge and skills, renewing former ones, and preserving and increasing professional competence constitutes postgraduate medical education Providing the environment and atmosphere for accomplishing this is the objective of the Kansas program

Formerly designed for and directed at the generalists in our region, the program is now geared to the needs of every physician, regardless of his interest or field of specialization Preservation of competence, renewal of former skills, and acquisition of new knowledge is a need of all physicians, not of one group alone The prime responsibility of the Kansas program is to the physician of Kansas, but, feeling a regional responsibility and encouraged by a regional response, the department no longer regards the state boundaries as valid limitations to its activities

No longer are all programs prepared exclusively for physicians We now recognize the need for providing continuation education for ancillary medical personnel, such as nurses, technicians, physical therapists, and others More recently, we have assumed the responsibility for a fourth phase of medical education namely, that of health education for the lay public The real aim of all medical education should be improving the health of our people Increasing the skills of all those engaged in medical care and increasing the understanding regarding health matters for those receiving the medical care are, therefore, prime objectives This final statement also indicates quite clearly our potential student body

Scope and Structure of Present Program

An immediate view of this program can be gained by examination of the course offerings and the enrollment A characteristic of all the courses (see table) is the use of participative methods of education in courses other than rounds, clinicopathological conferences, laboratory work, seminars, or live clinics rather than use of lectures alone

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This symposium, Postgraduate Medical Education, is directly related to this function of the Council of acting as a 'clearing house' In the past, attention has been largely on formal courses and comparatively little on other approaches to the continuing education of physicians The papers of this symposium will concentrate on hospital activities in non-course education for practicing physicians

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Professor of Medicine and Chairman of Department of Postgraduate Medical Education (Dr Delp), Associate Professor of Medicine and Pharmacology (Dr Rising), and Executive Director of Postgraduate Medical Education (Mr Nelligan), University of Kansas School of Medicine

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The creation of the department of postgraduate medical education of the school of medicine, in 1945, served to stimulate expansion of all postgraduate activities This step represented the attainment of a degree of maturity in the administrative structure, permitting organized planning, unified administration, and development of policy based upon sound principles in medical education Although chief responsibility for the entire program rests immediately upon the university and the medical school, the state medical society still retains co-sponsorship through its committee for postgraduate medical study The whole program of postgraduate medical education in Kansas is an integral part of the Kansas plan for rural medical care, formulated in 1948

This is the historical background of one program of postgraduate medical education, which may be considered a prototype of programs involving a medical school and a state medical society The barest fundamentals in any educational project however, are a student, a teacher, and a curriculum therefore, postgraduate medical education may be, and is, carried on in a successful manner using other methods

Organization

The topmost administrative body of the University of Kansas is its board of regents, to whom the chancellor is directly responsible He and the deans of the various schools formulate policy in an administrative pattern common to most state universities The dean of the medical school, with the aid of his faculty, guides activities and controls policy within the school Postgraduate medical education is designated as a distinct function of a separate department within the medical school As such, it has its own responsibilities prerogatives, and the usual amount of autonomy Department administration is carried on by a chairman and an executive director

The Kansas Medical Society has an administrative structure similar to other such state organizations It has a committee for postgraduate study Working directly with the medical school is a joint advisory committee composed of the representatives of the committee for postgraduate study of the medical society, the chairman of the committee on medical schools, the chairman and one member of the committee on rural health, one official from the Kansas State Board of Health, one official from the Kansas Academy of General Practice, and additional selected persons These interested persons join with the chairman of the department of postgraduate medical education and the dean of the school of medicine as an actual working and policy-making group The term "working" is used advisedly, because this group annually spends from 8 to 10 hours in session, discussing the past year's activities and problems facing the department and actually building in outline the content and format of programs for the ensuing year

It might seem that the organizational structure is too bulky and loosely bound for good administration, but experience has proved this to be not so The program administration, in the last analysis, falls directly and properly upon the medical school The medical school also supplies the other essentials curriculum, faculty, facilities, budget, educational methods, and evaluation to the enterprise

Objectives and Purposes

The objectives of this program, as outlined in our last annual report, are—as might be expected—similar in general terms to all other such programs Medicine has become so complex that it is obviously not possible to provide a completely detailed and sustaining knowledge concerning every medical and related discipline during a four-year period of study Consequently, four years of undergraduate medical study, internship, and even residency supply merely the foundation for a lifelong study of medicine Continuation of study aimed at the physician's acquiring new knowledge and skills, renewing former ones, and preserving and increasing professional competence constitutes postgraduate medical education Providing the environment and atmosphere for accomplishing this is the objective of the Kansas program

Formerly designed for and directed at the generalists in our region, the program is now geared to the needs of every physician, regardless of his interest or field of specialization Preservation of competence, renewal of former skills and acquisition of new knowledge is a need of all physicians, not of one group alone The prime responsibility of the Kansas program is to the physician of Kansas, but, feeling a regional responsibility and encouraged by a regional response, the department no longer regards the state boundaries as valid limitations to its activities

No longer are all programs prepared exclusively for physicians We now recognize the need for providing continuation education for ancillary medical personnel such as nurses technicians, physical therapists, and others More recently, we have assumed the responsibility for a fourth phase of medical education namely, that of health education for the lay public The real aim of all medical education should be improving the health of our people Increasing the skills of all those engaged in medical care and increasing the understanding regarding health matters for those receiving the medical care are, therefore, prime objectives This final statement also indicates quite clearly our potential student body

Scope and Structure of Present Program

An immediate view of this program can be gained by examination of the course offerings and the enrollment A characteristic of all the courses (see table) is the use of participative methods of education in courses other than rounds, clinicopathological conferences, laboratory work, seminars, or live clinics rather than use of lectures alone

A total of 3,760 persons were enrolled in the postgraduate program from July 1, 1955, through June 30 1956, with 2,319 physicians included in the total The number of physicians enrolled in symposiums was 1,417, in intermittent courses, 546, in correspondence courses, 299, in courses in advanced, clinical, and investigative techniques, 53, and in clinical traineeships, 4 Total enrollment of persons engaged in allied and ancillary fields was 1,441 during the same period There were 6 doctors of philosophy enrolled, 52 doctors of dental science, 199 medical technicians, 692 registered nurses, and 492 lay persons

Local Attitudes Toward Postgraduate Education

During the past 10 years, the Kansas program of postgraduate education has matured, becoming an effective and quite extensive enterprise in continuation education This situation, however, came about after almost 40 years of effort The step in the program's development that has been the most recent and that has given it the greatest stability was the creation of the department of postgraduate medical education within the medical school This provided the needed administrative structure Of equal importance and coming earlier in the development of this program was the cooperation with the potential student body represented in the state medical society These two features would not have been sufficient to establish the program without the wholehearted acceptance by the dean of the medical school and the university administration of postgraduate education as a part of the responsibility of a medical school This acceptance was outlined very clearly by the administration in 1948 as a part of the Kansas plan for rural medical care

Courses in Postgraduate Medicine Offered by the University of Kansas School of Medicine, 1956 1957

For the Medical Profession

Symposiums (short courses)
Obstetrics
Internal medicine
Pulmonary disease clinic
Gastroenterology
Surgery
Radiology and radioactive isotope
The heart cardiac arrhythmias
Neurology
Symposium on pain
Pediatrics
Electrocardiography
Hematology
Ophthalmology and otolaryngology
Anesthesiology
Cardiac auscultation
Symposium on leptospirosis

Intermittent courses
General practice
Surgery—operative clinics
Kansas circuit course

Correspondence courses
Interpretation of electrocardiograms—courses 1 and 2

Special skills course
Radiological physics
Histochemistry
Clinical use of radioactive isotopes

For Allied Professions

Operating room nurse institute
School health conference
Medical technology

Nursing and nursing education
Hearing and speech conference
Anesthesiology for the dental profession

Institute for Vocational Rehabilitation of Mentally Ill

The public voicing of this responsibility of the medical school, which was expressed in such a manner as to impress every faculty member, met with the spontaneous approval of the Kansas Medical Society It was an important step in renewing a desirable relationship with the practicing physicians within the state

There has evolved in Kansas a working relationship between the state medical society and the medical school of the state university that has made possible an increasingly mature and extensive program of medical education At no time in this relationship between the society and the medical school has there been conflict or friction that in any way impaired the prerogatives or fundamental policy of the school The Kansas Medical Society with the postgraduate study committee has functioned as a helpful advisory committee and has at no time attempted to dictate policy Such a pleasant relationship is in part the result of the medical school's approval of the over-all program and of the real acceptance by the society of this program as 'their program,' primarily designed for them with their help and for which they have a paternal attitude

The faculty of the school of medicine has, by years of close association with the postgraduate program, become more sympathetic toward the additional burden of this phase of teaching When the faculty was smaller, resistance did exist, but it was lessened by the wholehearted acceptance by the dean and the university administration of postgraduate education as a part of the school's responsibility The structuring of a new department of postgraduate medical education with a departmental chairman, an executive director, and adequate personnel to do much of the routine work added a new dignity to the local program and administrative sanction to its permanence All of this served to diminish the objections of the overworked undergraduate teacher who had not originally thought that such activities would be included in his duties This was particularly true of the basic science instructors Coloring the reluctance of this group was their inherent fear of disapproval when they appeared before clinicians The gradual fortification of the faculty with additional members and the inclusion in their initial interviews of an outline of responsibility to postgraduate education has overcome this problem At present, there is not a single member of any department of the medical school who does not willingly and frequently help with this form of teaching One basic science teacher has, on several occasions, stated that he has never had previously such an excellent opportunity to assay the results of his undergraduate teaching

The constant participation of basic science teachers along with clinical teachers in teaching teams, both in the circuit program and in short courses, has done much to eliminate the schism between basic scientists and practicing physicians It has vastly improved the morale of the basic science teachers by fostering a closer relationship with men who use their discoveries in daily practice This team association has also done much to improve the level of teaching by the clinician, who all too often is quite offhand in interpreting disturbed physiology and other basic phenomena if there be no one around to check this enthusiasm

The liberal use of "guest faculty members for participation in all short courses lessens the burden on our own faculty, but the local faculty assumes full responsibility for the circuit programs as well as for the clinical traineeships For the short courses, they assist with ward rounds, conferences, and panel discussions, participating only occasionally in didactic presentations Distinguished guest faculty members have always been used in this program as a means of supplementing our own staff and of increasing program appeal and effectiveness There is no question about the soundness and popularity of the practice among both our faculty and the enrollees

Self-analysis and Evaluation

The ultimate aim of postgraduate education today is the fostering of the best quality of medical care by each practicing physician It, therefore, behooves an alert administrator in this field to appraise or inquire into the character and type of practice in the region served He should learn of the needs and desires of his potential student body concerning program content, format, instructional staff, favorable dates for courses, and appropriate fees

One can immediately appreciate the need for perpetual self-analysis and evaluation as elements in the continuation of successful operation of a program of postgraduate medical education No medical administrator should be satisfied with organizing such a venture and then sitting back complacently to let it operate year after year without continuing study appraisal, evaluation, and improvement

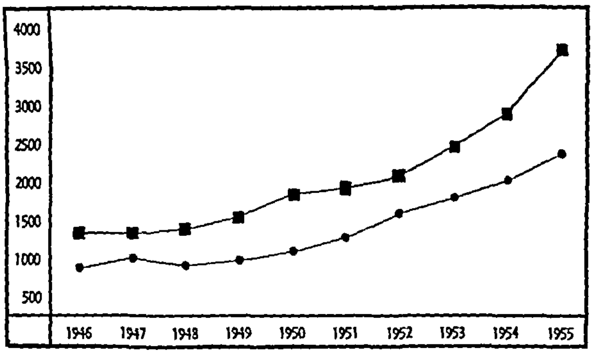

Fig 1—Graph showing summary of enrollment from 1946 through 1955 at University of Kansas School of Medicine The enrollment of physicians (circles) is compared to the total enrollment (squares)

The department has sought such information from its student body in several ways 1 Questionnaires are sent out by the medical society to individual practicing physicians inquiring about their own types of practice as well as about many of the common questions confronting a producer of postgraduate courses 2 Registration data (fig 1) are secured on each enrollee and tabulated annually, including city and state of practice, field of practice (fig 2), medical school, year of graduation, and distance traveled to attend program This tabulation is subjected to continuous analysis 3 An individual study of the patients seen and treated by a group of representative general practitioners holding appointments as medical school preceptors is currently being carried out with the assistance of our medical student preceptees 4 Each program produced is subjected to critical study by the submission to each enrollee of a questionnaire concerning the specific program, its content, format, teaching techniques, and fees and suggested improvements

Data on the 2,319 physicians enrolled in postgraduate courses in 1955-1956 show the type of information that is obtained from enrollment questionnaires A study of the geographical distribution revealed that 1,096 physicians were from Kansas, 1,211 from other states, 2 from territories of the United States, and 10 from foreign countries Data on distance traveled to attend courses during the same period showed that 328 physicians traveled less than 25 miles, 186 from 25 to 100, 256 from 100 to 200 miles, 360 from 200 to 300 miles, 157 from 300 to 500 miles, 96 from 500 to 1,000 miles, and 60 over 1,000 miles

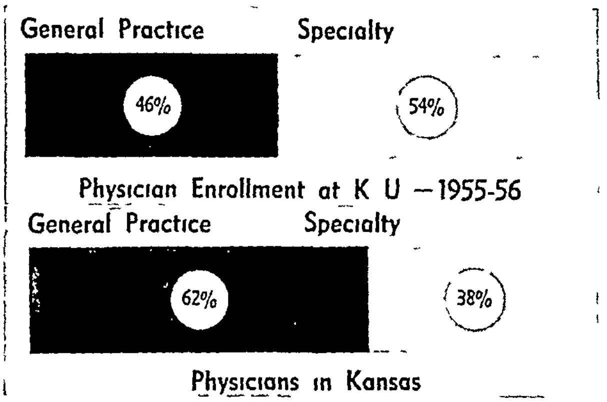

Fig 2—Graphs showing percentages of physicians in general and specialty practice enrolled in postgraduate courses at the University of Kansas in 1955-1956 compared to percentages of physicians in general and specialty practice in Kansas

Collection of registration data and 'postmortem' information on programs is routine and continuous The surveys of medical practice in our state, as well as the studies on the individual practitioner with regard to such factors as his training and his field of practice, are special projects to be repeated at suitable intervals (fig 3) *Securing such information is essential* to the success of a postgraduate program

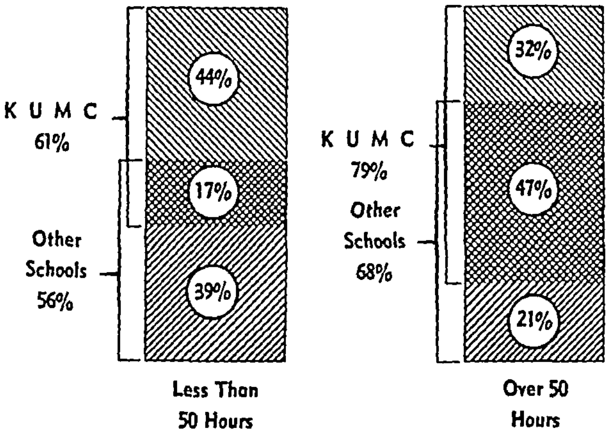

Fig 3—Graphs showing place of enrollment of physicians taking less than 50 hours and more than 50 hours of postgraduate work in 1953, 1954 and 1955

Physicians are compelled to attend continuation study exercises, an impelling conscience being the effective incentive Only the Academy of General Practice has had the courage to suggest more effective compulsion The postgraduate student must be attracted to a program and his interest must be captivated to hold him His body cannot be captured as can the undergraduate's The program must be sound, useful, and inspirational if he is to remain It must promise the same for the future if he is to return Programs must be planned carefully, promoted effectively, and produced well if they are to serve their purpose This requires constant study and re-study of one's own problems To date, there is no large and reliable clearing house of information or fostering influence to guide the school, department, or any other producer of postgraduate medical education Each must chart its own course

Future of Program

Looking to the future, we envision retention of the present administrative structure, with the program operated as a department in a medical school, with use of the same teaching staff and retention of close identity with the parent medical school Establishing a separate division or school would sacrifice something built deliberately—a teaching staff committed to all phases of medical education The close liaison with the state medical society has been a major factor in the growth and security of our program, and retention of this relationship is essential

Equally necessary is continued long-term planning of the programs of intermittent and short courses to fit the needs of the physicians of this region, with careful attention being given to curriculum material, effective methods of presentation, and selection of a competent faculty

One of the United States real contributions to medical education has been in the field of graduate medical education Residency training is a proved method of giving, at least temporarily, a high degree of professional medical competence The usual short and intermittent courses cannot be compared with it for effectiveness This observation leads to a desire to increase our clinical-traineeship teaching, simply because of the superiority of this method

Promoting the acceptance of a fourth phase of medical education as a reality and engaging in and assisting voluntary health organizations in health education are considered to be other important future objectives

We must continue the collection of data from registrants—the study of problems and practices of the student body This sort of research and critical analysis is, at present, the only means available for evaluation and improvement of the program Ultimate determination of whether a program is raising the level of medical care and inspiring the hoped-for response in the student body defies a direct approach Further research in methods and modalities of teaching should represent another field of study for a progressive program Increased use of television and the development of new home study courses and exploratory courses in yet untried fields represent further possibilities in development

Summary

The Kansas program of postgraduate medical education has, during the past 14 years, gained new vitality and purpose Most important in this change has been the association with the state medical society—members of which compromise the program's student body Next in importance has been recognition by the university and the medical school of their prime responsibility for this phase of medical education The school s acceptance took tangible form in the creation of a department of postgraduate medical education which gave the program administration, faculty, facilities, and a budget The department provided the remaining essentials—curriculum, teaching methods and self-analysis and evaluation

The future will be secure if sound educational policies based upon continuing critical self-appraisal are maintained Acceptance of the program is assured so long as the mutually profitable relationship with the student body exists

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Types of Thyrotoxicosis —Thyrotoxicosis embodies three main components—thyrotoxic, mechanical and cardiac—which vary in importance in any individual case The thyrotoxic component includes all the manifestations of thyroid overactivity, the mechanical component consists of pressure effects exerted by the bulk of the goiter upon the trachea or oesophagus, and the cardiac component comprises auricular fibrillation and congestive heart failure Cases of thyrotoxicosis may be subdivided into primary and secondary types Primary thyrotoxicosis, or exophthalmic goiter, usually affects young women whose thyroid glands are believed to have been previously normal The clinical picture is almost wholly one of the thyrotoxic component The goiter is smooth, diffusely enlarged, symmetrical and seldom large, pressure effects upon the trachea or oesophagus are exceptional, hence there is no mechanical component In the absence of pre-existent rheumatic or other heart disease the cardiac component, as manifested by thyrotoxic auricular fibrillation and congestive heart failure, is very rare Secondary thyrotoxicosis, or toxic nodular goiter, on the other hand, affects middle-aged or elderly women who have often possessed a previously sim[illegible] goiter for many years With the passage of time the goiter has slowly enlarged, beco[illegible] nodular and asymmetrical Pressure upon, or deviation of, the trachea and oesophagus [illegible] border of the goiter may have descended into the thoracic inlet [illegible] often a marked feature The cardiac component is al[illegible] sh[illegible] fibrillation or congestive heart failure, but the thyrot[illegible] as [illegible] than in primary cases —L Martin, M D , F R C P , [illegible] Th[illegible] *Practitioner*, June, 1956

UNIVERSITY OF MICHIGAN PLAN FOR POSTGRADUATE MEDICAL EDUCATION

AN EXAMPLE OF THE POTENTIALITIES OF REGIONAL HOSPITAL–MEDICAL SCHOOL AFFILIATION

Harry A Towsley, M D, Ann Arbor, Mich

• *The best place for a physician to continue his education is in his own hospital, where he can assume a sincere obligation for his share of the training program The development and maintenance of a satisfactory graduate training program in the regional hospital by members of its own staff provide a continuous opportunity for intellectual stimulation It has been observed that practicing physicians in regional hospitals, through their repeated contacts with members of the faculty where there is a visiting program as provided by the University of Michigan, are more prone to utilize consultation, and such consultation, whether it be formal or informal, provides immeasureable education opportunities at all levels*

The faculty of the University of Michigan Medical School, in addition to its primary obligations to provide undergraduate medical education, to conduct research, and to care for the sick, is engaged in three major activities in the field of postgraduate medical education These are the extramural, circuit program, the intramural, refresher courses, and the program for affiliated hospitals In the order listed, each program provides increasing potentialities for continuing education for practicing physicians

Extramural and Intramural Programs

The extramural program is a combined project of the Michigan State Medical Society, the Michigan Department of Health, Wayne State University College of Medicine, and the University of Michigan Medical School Programs are arranged by the department of postgraduate medicine at the University of Michigan, utilizing the faculty members of the two medical schools Nineteen centers served by this program are located mainly in the rural areas of the state Teams of two to three faculty members present lectures on prearranged subjects in each center Where facilities permit and audiences desire, clinical conferences are held These programs provide a brief postgraduate educational experience twice yearly for approximately 800 physicians (fig 1)

The intramural program provides some 17 refresher courses at the University of Michigan in the various fields of medicine These courses are of three-days' to five days duration The average annual registration is approximately 900 physicians The opportunity for close intellectual exchange between teacher and practicing physician in these courses leaves little doubt as to the educational stimulation derived

Programs for Regional Affiliated Hospitals

The programs for affiliated regional hospitals in Michigan encompass three educational activities in 19 hospitals These activities include the residency program in 15 hospitals (see table), the two-year general practice program in 2 hospitals, and the program for general practice experience for undergraduate students in 2 hospitals The distribution of these hospitals is shown in figure 2

The potentialities for postgraduate medical education for the physicians comprising the attending staffs of these hospitals are broad and continuous They are in direct proportion to the physician s interest, enthusiasm, and perseverance in the conduct of successful training programs in the regional hospitals The basic objectives and method of conduct of the affiliated-hospital programs were clearly defined by Wilkinson,[1] who served as coordinator at the time of their inception However, to set forth more clearly the potentials for postgraduate education at the present time, a brief review of the method of operating is presented

Residency Program —Of the 15 hospitals participating in the residency program 3 are affiliated for residencies in internal medicine, 1 for surgery, 5 for medicine and surgery, and 6 for medicine, surgery, and obstetrics and gynecology, making a total of 32 affiliations in the three specialties A hospital must first obtain approval from the Council on Medical Education and Hospitals of the American Medical Association for the residency program for which it seeks affiliation Under the terms of affiliation, the hospital agrees to provide a minimum teaching program consisting of (1) teaching ward rounds of at least one-hours duration on the affiliated service five days weekly, (2) a weekly, radiologic, clinical, and clinicopathological conference, and (3) outpatient experience for the residents on the affiliated service The individuals responsible for the teaching programs on the affiliated service must be diplomates of their respective board or fellows of their respective specialty college

The medical school assists the regional hospital with its training program in two ways First, courses at the University of Michigan in the basic sciences and their clinical correlation are provided for the residents These courses vary according to the specialty affiliation

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One of the United States' real contributions to medical education has been in the field of graduate medical education. Residency training is a proved method of giving, at least temporarily, a high degree of professional medical competence. The usual short and intermittent courses cannot be compared with it for effectiveness. This observation leads to a desire to increase our clinical-traineeship teaching, simply because of the superiority of this method.

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tion of members of the clinical faculty, is carried out through clinical conferences, lectures, demonstrations, and bedside teaching The remaining three months of the year, the residents may elect to spend their time in one of the surgical specialties Upon completion of the year at the University Hospital, residents return as chief residents to their hospitals for the third and final year of training The year at the medical school is credited as one of the two years, over and above the three years of residency, required of group 2 candidates for certification by the American Board of Surgery

Currently, residents in internal medicine spend nine months of the second of their three years in a similar course, with the choice of electing to spend the remaining three months in one of the medical specialties at the university Also, residents in obstetrics and gynecology have had a special six-months' course in basic sciences pertaining to that specialty and a similar experience in correlation and application directed by the clinical faculty in that field All residents in these courses are expected to attend the major teaching conferences held by the clinical departments of the medical school in the specialty for which they are affiliated

Hospitals in Michigan Affiliated with University of Michigan Medical School for Residency Training

	Internal Medicine	Surgery	Obstetrics and Gynecology
Alexander Blain Hospital Detroit	x		
Blodgett Memorial Hospital Grand Rapids	x	x	
Bronson Methodist Hospital Kalamazoo	x	x	
Butterworth Hospital Grand Rapids	x	x	x
Edward W Sparrow Hospital Lansing	x		
Hurley Hospital Flint	x	x	x
Leila Y Post Montgomery Hospital Battle Creek	x	x	
McLaren General Hospital Flint		x	
Mount Carmel Mercy Hospital Detroit	x	x	x
Pontiac General Hospital Pontiac	x	x	x
Saginaw General Hospital Saginaw	x	x	x
St Joseph's Mercy Hospital Ann Arbor	x	x	x
St Joseph Mercy Hospital Detroit	x	x	
St Mary's Hospital Grand Rapids	x	x	
St Lawrence Hospital Lansing	x		

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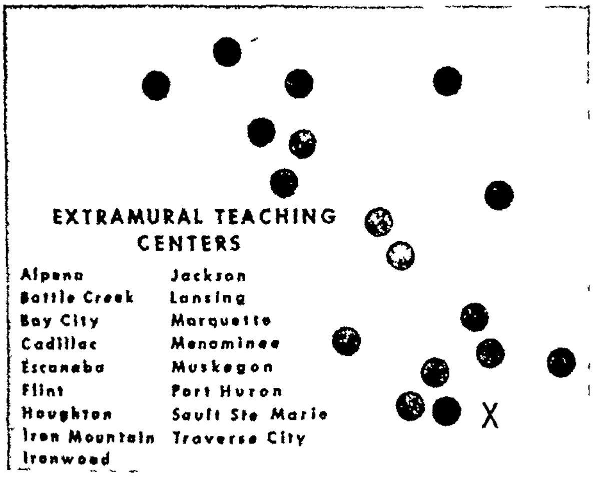

Fig 1—Map of Michigan showing locations of extramural teaching centers in relation to location of the University of Michigan (X)

The university assists these hospitals by providing 12 scheduled faculty visits annually by representatives from the four major specialties The content of these visits is similar to that in the residency and general practice programs

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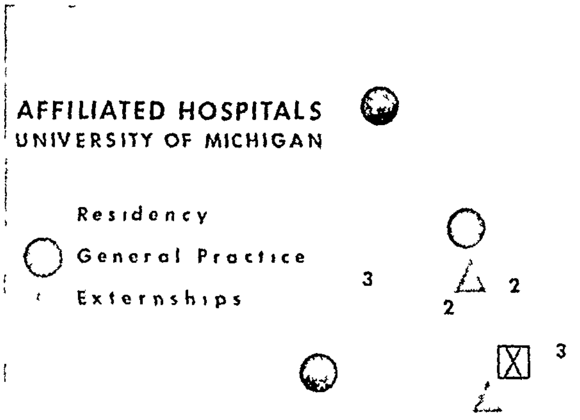
Statistics and Finances of All Programs—For all of the programs in the 19 hospitals, the faculty averages 264 visits and travels more than 26,000 miles each year Over a five-year period, an annual average of 65 visits from senior clinical instructors, 99 from assistant professors, 73 from associate professors, and 17 from professors have been made under these programs All these persons are full-time or geographical full-time members of the faculty of the medical school



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Potentialities for Postgraduate Education

The potentialities for postgraduate medical education, as exemplified in these programs, may be divided into two general categories—the direct and the indirect

Direct Potential—The direct potential for postgraduate education, if measured in terms of the number of hours of lectures and conferences provided by medical tion of members of the clinical faculty, is carried out through clinical conferences, lectures, demonstrations, and bedside teaching The remaining three months of the year, the residents may elect to spend their time in one of the surgical specialties Upon completion of the year at the University Hospital, residents return as chief residents to their hospitals for the third and final year of training The year at the medical school is credited as one of the two years, over and above the three years of residency, required of group 2 candidates for certification by the American Board of Surgery

Currently, residents in internal medicine spend nine months of the second of their three years in a similar course, with the choice of electing to spend the remaining three months in one of the medical specialties at the university Also, residents in obstetrics and gynecology have had a special six-months course in basic sciences pertaining to that specialty and a similar experience in correlation and application directed by the clinical faculty in that field All residents in these courses are expected to attend the major teaching conferences held by the clinical departments of the medical school in the specialty for which they are affiliated

Hospitals in Michigan Affiliated with University of Michigan Medical School for Residency Training

	Internal Medicine	Surgery	Obstetrics and Gynecology
Alexander Blain Hospital Detroit	x		
Blodgett Memorial Hospital Grand Rapids	x	x	
Bronson Methodist Hospital Kalamazoo	x	x	
Butterworth Hospital Grand Rapids	x	x	x
Edward W Sparrow Hospital Lansing	x		
Hurley Hospital Flint	x	x	x
Leila Y Post Montgomery Hospital Battle Creek	x	x	
McLaren General Hospital Flint		x	
Mount Carmel Mercy Hospital Detroit	x	x	x
Pontiac General Hospital Pontiac	x	x	x
Saginaw General Hospital Saginaw	x	x	x
St Joseph s Mercy Hospital Ann Arbor	x	x	x
St Joseph Mercy Hospital Detroit	x	x	
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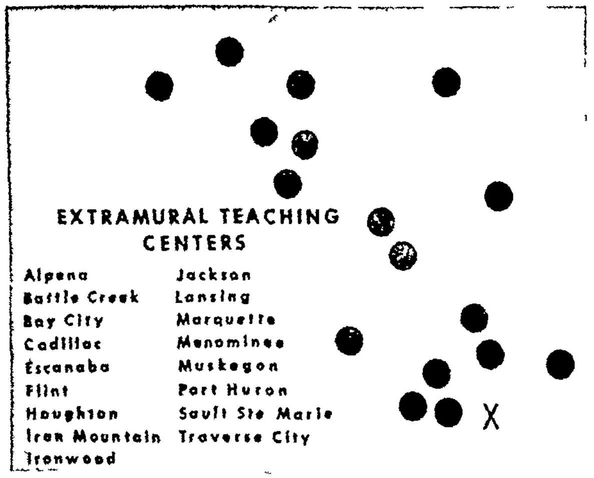

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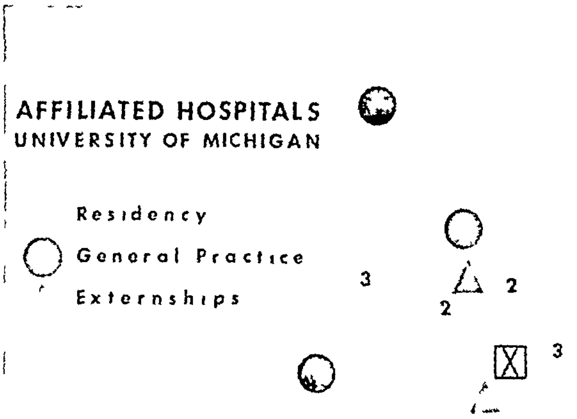

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Potentialities for Postgraduate Education

The potentialities for postgraduate medical education, as exemplified in these programs, may be divided into two general categories—the direct and the indirect.

Direct Potential.—The direct potential for postgraduate education, if measured in terms of the number of hours of lectures and conferences provided by medical school faculty members who have gained recognition in their special field of interest, would provide to the physicians in hospitals affiliated for one residency program 12 hours of postgraduate experience each year, to those in hospitals affiliated for two residency programs, 24 hours, and to those in hospitals affiliated for three residency programs, 36 hours. Physicians comprising the staff in hospitals affiliated for general practice training would receive approximately 18 hours of direct postgraduate education in the four major specialties, while staff members in hospitals affiliated for the student program are provided 24 hours of postgraduate education opportunity in the four major specialties.

It is estimated that approximately 1,500 physicians, representing the combined attending staffs of the 19 affiliated hospitals, would have the opportunity of receiving from 12 to 36 hours of postgraduate education annually in these programs. Actually, over the past five years, there has been an annual average attendance of 600 physicians. Of particular interest in regard to attendance is the fact that close to 75% of the available staff members in the more isolated rural hospitals exhibit a keen interest in postgraduate medical education, as manifested by their continued attendance at these functions.

Clinical conference teaching is generally regarded as far more stimulating and rewarding than the usual didactic lecture, particularly when the clinical material presented involves the patients in the doctor's own hospital. Unfortunately, all of the affiliated hospitals do not take full advantage of this method of teaching during each visit. In those hospitals, the potential for postgraduate education to the staff is reduced.

Indirect Potential.—The indirect opportunities for the continuation of professional growth for the practicing physicians in the regional hospitals are available in a number of ways. For example, the resident who has attended the program on the basic sciences and its combined clinical correlation and has taken advantage of the many teaching conferences available to him in his specialty at the university returns to his hospital with the knowledge of new diagnostic and therapeutic measures and new laboratory procedures, which he can disseminate to the members of the staff through conferences, ward rounds, and daily contacts.

The same may be said of the intern in the general practice program when he returns to the affiliated hospital for his second tour of duty and of the teaching resident who carries with him the teaching of the department in which he had his training at the university. To a far lesser degree, the medical student, with his recently acquired knowledge from the various departments in the medical school, may contribute in a similar fashion.

The development and maintenance of a satisfactory graduate training program in the regional hospital by members of its own staff provide a continuous opportunity for intellectual stimulation. Those who take the responsibility for teaching ward rounds, of necessity, are stimulated to peruse more critically the medical literature in the attempt to teach in a creditable manner. The repeated attendance and participation by the staff members in the teaching functions within their own hospital, such as clinical, clinicopathological, and x-ray conferences and journal club, provide unlimited potentialities to the practicing physician for continuation of his education, particularly when these functions are carried out as teaching exercises. The presence of a resident, intern, or student who is given the opportunity to discuss the differential diagnosis with the practicing physician at the bedside serves as a stimulus for more thorough study of the patient's problems, thus reducing the possibility of error in diagnosis and treatment.

In those hospitals with good teaching programs for the house staff, there appears to be a much freer use of consultation. Whether they be formal or informal, such consultations provide immeasurable education opportunities at all levels. It has been observed that practicing physicians in regional hospitals, through their repeated contacts with members of the faculty through the visiting program, are more prone to call faculty members in consultation for their difficult problems.

It has been repeatedly stated that the best place for a physician to continue his education is in his own hospital. This is true as long as he maintains an open, inquiring, critical mind and a keen interest in the progress of the science of medicine. This opportunity is greatly enhanced if his hospital is charged with the responsibility of providing a satisfactory training experience for residents, interns, or medical students, particularly if that obligation is discharged with pride in the products of its efforts.

The potential is further enhanced if the physician himself assumes a sincere obligation for his share of the training program offered by his hospital. Whether it be teaching at the bedside or in the scheduled conferences or directing journal club, adding his bit to the discussion will be stimulating and rewarding in that the knowledge gained therefrom will sooner or later be of benefit to his patients. In those hospitals where an honest and sustained effort to provide the best possible training program for the house staff exists, the practicing physician will find an unequaled opportunity for continuation of his own education.

Without the support of a university administration and a medical faculty dedicated to the belief that a doctor's education should not end with graduation from medical school or at the end of his internship or residency and without donation of time by the practicing physicians in the affiliated hospitals for educational programs for residents, interns, or medical students, postgraduation education opportunities for the less motivated practicing physician will not exist in his own hospital, where it is ripe for his taking. It is believed that the regional hospital–medical school programs offer the practicing physician an unequaled potential for continuation education.

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2. Essentials of Approved Internship, revised, Council on Medical Education and Hospitals of the American Medical Association, 1955.

NEW YORK UNIVERSITY PLAN

AN EXAMPLE SHOWING THE POTENTIALITIES OF REGIONAL HOSPITAL–MEDICAL SCHOOL AFFILIATION

Charles F Wilkinson Jr, M D, New York

• *The plan of having regional hospitals affiliated with university medical schools has certain advantages In the present instance, six hospitals are so affiliated, they are not limited by state lines, but by considerations of commuting distance The teaching plan is formulated and implemented by a local educational committee made up of the directors of the hospital's departments of surgery, medicine, obstetrics and gynecology, and pathology, with the assistance of other physicians of the staff the hospital also recruits and appoints interns and residents The university center supplies both administrative guidance and instructional resources, with emphasis on a sound house staff program and a minimum of lectures to large audiences The test for success in such a plan is the continued willingness of medical schools to participate and of the regional hospitals to bear most of the expense*

It is probably of some significance that eight years ago I presented a paper, "The Utilization of Regional Hospitals for Medical Education"[1] to this congress Now I have been asked to discuss the potentialities of such a program After eight years, this significance is twofold 1 Many persons are still interested in regional hospital–medical school affiliation 2 We still wonder what the potentialities are and, I presume, how we can measure them

Since I have been asked to discuss the potentialities within the framework of the New York University program, perhaps I should first describe the plan, although this could be done more adequately by my friend and colleague, Dr Clarance E de la Chapelle Since going to the New York University Post-Graduate Medical School, I have, on occasion, visited the regional hospitals as do other members of the professorial staff, but I have had no responsibility in the administration of the plan Thus, my comments might be considered the 'worm's-eye view, that is, the one of the full-time professor

Original Program

The New York University–regional hospital program, like so many of the regional programs, was made possible, at the start, by a grant from the W K Kellogg Foundation[2] It has, like most of these programs, undergone a series of changes and modifications so that, in its present form, it represents a compromise between what the program director, the affiliated hospital, and the faculty believe to be ideal and what is practical That the program exists at all today means to me that it cannot be too far from any of these three ideals

At the start, New York University had an advantage (at least it was considered by some as such) in not being a state university, and, therefore, it could operate across state lines I should add that here the so-called advantage ended It did not extend to such base and mundane things as the budget or faculty salaries The original description of the program[3] stated that it was intended that, by affiliation, the New York University College of Medicine would affiliate with selected hospitals in the suburbs, in small towns, and even in rural communities The members of the resident staffs of the hospitals would have the privilege of spending an academic year at the medical school, during which time they would participate in basic science or graduate courses applicable to their particular field of residency The basic science courses were taken on a part-time or a full-time basis, the graduate courses were taken full-time No tuition was charged, but the affiliated hospital was made responsible for the candidate's maintenance, whether the institution was within commuting distance or not

The members of the attending staffs of these hospitals, especially the younger men, had the opportunity to continue their own education by returning for ward work or continuation courses in the medical school and by the visits of faculty members to the hospitals The hospitals cooperating in the plan fulfilled all the requirements of the American College of Surgeons and, in addition, maintained an educational program outlined by the medical school

It was thought that the establishment of such a system of hospitals associated with a large medical center, with their teaching supervised by the medical school, would improve the quality of medical care and provide substantial broadening of the opportunities present for physicians to obtain graduate and postgraduate medical education

In 1948, the merger of the New York University College of Medicine and the New York Post-Graduate Medical School and Hospital had been effected, and the New York University–Bellevue Medical Center was established After this merger, the Division of Affiliated and Regional Hospitals was formed and placed, for administrative purposes, in the postgraduate medical school, but it was able to call on the faculties of both the college of medicine and the postgraduate medical school for periodic visits to the regional hospitals

By 1949, there were 10 affiliated hospitals in four states, with a total of some 2,500 beds (fig 1) There were salaried coordinators at each of the affiliated hospitals These coordinators were usually young men who had just entered practice They devoted from one-third to one-half of their time in arranging the educational program at the hospital and supervising the intern and resident training programs As the

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Professor and Chairman Department of Medicine, New York University Post-Graduate Medical School

Read before the 53rd Annual Congress on Medical Education and Licensure, Chicago Feb 11, 1957 requirements of their practices became more demanding, they turned their jobs over to younger men and went on to equally important, but somewhat less active positions in the program This plan had the additional advantage of enabling desirable young men to start in a community with a small stipend that would help pay the office rent until their practices were established

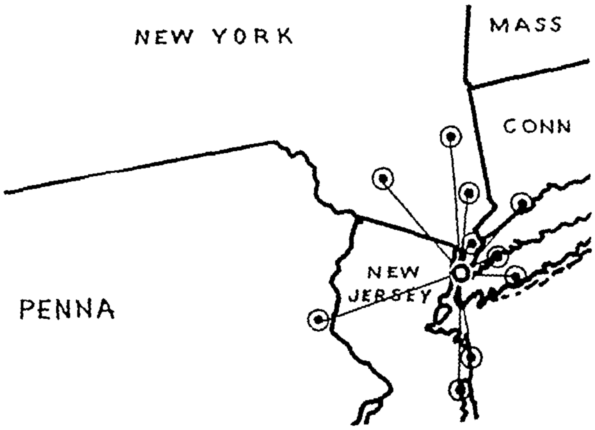

Fig 1—Dots show the geographical distribution of the 10 hospitals affiliated with the New York University–regional hospital plan in 1949

Present Program

At the present time, active membership in the regional hospital plan is limited to six hospitals[4] There are three levels of membership, designated as first, second, and third year A faculty representative visits the hospital in the first-year group two days a week during the academic year In the second year, visits are made weekly and in the third year biweekly After three years of active membership, a member hospital may continue its affiliation as a graduate hospital Faculty visits are then made on request

Faculty visits are dependent upon the needs of the various departments of the member hospital The making of a minimum number of planned presentations to large audiences is the rule Both the major specialties and the subspecialties are represented by the visiting faculty members No rigid schedule is followed as to the number of visits made to any department

In order to carry out successfully the regional hospital plan, it became apparent that unanimity of agreement on the part of the member hospital staffs as to the purpose of the plan was absolutely necessary Where there existed a misunderstanding in this regard, the regional program did not succeed to the same degree as it did where the active attending staff were unanimous in their desire for affiliation

In the present regional hospital plan, the center makes it clear to the member hospitals that there are many and varied opportunities for mutual discussion of problems By consultations with the administrative officers of the plan, considerable help is available to the local teaching program For example, members of the hospital staffs may come to the medical center and draw on the academic experience of the faculty as well as attend clinics, conferences, and seminars It is the policy of the administration of the regional hospital plan to emphasize these hitherto unused resources

The new plan does not provide for a local coordinator Experience gained from the old plan indicated that such a key figure in the operation of the hospital program should have some voice in making policy in the hospital The common lack of seniority of the coordinator interfered seriously with the implementation of the policies and programs he proposed

In the new plan, each member hospital forms a committee that is responsible for formulating and implementing a training program This educational committee is made up of the directors of the departments of surgery, medicine, obstetrics and gynecology, and pathology, with the assistance of other physicians of the staff One member of the committee acts as a liaison officer between the hospital and the center

Interns and residents are recruited and appointed by the member hospital The medical center requires, however, that the hospital be approved for intern or resident training by the Council on Medical Education and Hospitals of the American Medical Association The medical center does not assume responsibility for the recruitment or the appointment of interns and residents, nor is it responsible for maintaining or seeking approval for intern and resident training in a member hospital Rotation of residents between a member hospital and the center is not a part of the new program

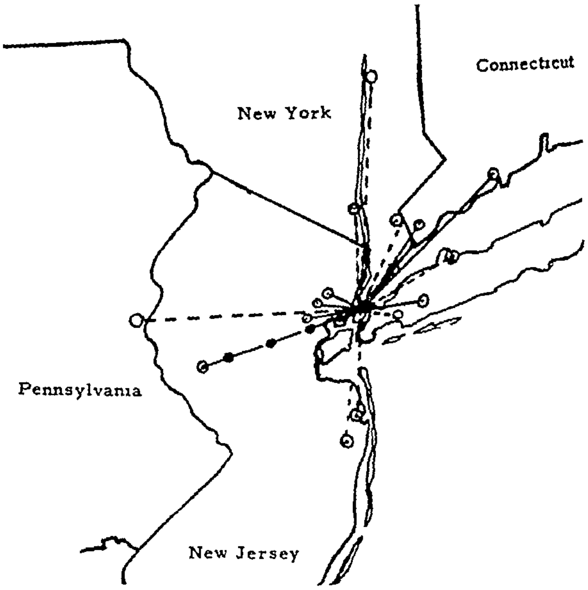

Fig 2—Dots show the geographical location of the hospitals presently affiliated (solid line) and those affiliated in the past (broken line) The one hospital indicated by a broken line and dots is Hunterdon Medical Center, Flemington, N J, and is considered in a separate category from the others

In order to minimize the nonproductive time consumed in travel, the geographical location of the regional hospitals participating in the new plan is limited to a radius of approximately 50 miles from the medical center

It is obvious that the outline I have presented of the New York University–regional hospital plan has been sketchy, but it will, I believe, serve the purpose of the symposium on postgraduate medical education Figure 2 shows what communities have had or do have hospitals participating in the plan

Potentialities and Success of Plan

What are the potentialities of this regional hospital–medical school affiliation? How can we evaluate success or lack of it? The potentialities appear to be as great as the vision and imagination of those administering and participating in the plan Ideally, any member hospital could eventually have superior local self-education for its staff, guided by the medical center Because of its educational program, the hospital should be more attractive to interns and residents, and a sound house-staff program should add stature to the continuing educational program of the visiting staff Because of an affiliation with the medical center, a hospital should have ready advice and consultation on matters ranging from diagnosis and therapy to new laboratory techniques and even hospital management Ultimately the regional hospital would be as much a part of the medical center as any ward geographically located in the center However, men being as they are, I do not expect perfection, but something less

It would be helpful if one could measure this degree of success Can this be done? To date, I know of no way to titrate these programs with any degree of accuracy Many of us have a feeling that they are more, rather than less, successful Members of the regional hospital staffs apparently feel that they are worthwhile and that the general level of medical practice in their hospital has been elevated

Some of us on the faculty feel, however, that our purpose would be better served if the affiliated hospitals were kept at a constant level of participation rather than at the step-like dissociation as in the present plan

From my own point of view, I hated to see the idea of the coordinator abandoned It had been my experience that it was easier to work through a coordinator than through a committee, but, as I pointed out earlier, my administrative experience was in a different part of the United States, and I cannot speak with any firsthand knowledge of the administrative problems associated with the current New York University–regional hospital program I can assure you that I have enjoyed my visits to the regional hospitals and that I have been impressed by the excellence of their training programs as well as by the standard of the medical care practiced in them

To me, the most significant fact is that the various hospitals in the regional plan of New York University pay for 80% or more of the cost of the program In other words, the regional hospitals want the program enough to pay their way On the side of the medical school, there is still enthusiasm on the part of some of us on the faculty and resigned acquiescence on the part of others, although I know of no active opposition

It would appear then, that, while not perfect, the New York University–regional hospital plan is here to stay It will, undoubtedly undergo other modifications in the future and may some day come even closer to the ideal of the medical center as an integral and vital part of the region it serves

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Acute Nephritis —When clinically apparent the mode of presentation in acute nephritis is extremely variable The onset may be sudden or insidious, and may accompany, or follow after an interval the signs of an acute infection in some other part of the body, usually a hæmolytic streptococcal infection in the upper respiratory tract Broadly speaking the onset tends to be abrupt in children, and the signs of nephritis are then apt to be intermingled with, or even over-shadowed by those of the primary infection In adults the so called latent interval is often longer, and apart from initial malaise, the early signs of nephritis may be confined to urinary changes which, however, may be quite marked But both in children and in adults acute nephritis may be ushered in by any one, or any combination of its cardinal features—bloody and scanty urine, with or without frequency, urgency, lumbar aching and pain, and, in children, abdominal pain and vomiting—œdema, especially, and almost invariably, puffiness of the eyelids and face on waking in the morning, and, in those who remain ambulant, swelling of the feet and ankles—cardiovascular signs such as headache, vomiting convulsions and coma In cases of war nephritis dyspnœa was a very common presenting symptom though then rarely met with in civilians My impression is that dyspnœa is now more frequently seen as a presenting sign in civilians Unquestionably hæmaturia and œdema are the two most striking and common initial clinical signs in acute nephritis and it is of interest to note that over the years their relative prominence as presenting features has apparently been reversed — A A Osman, F R C P, Acute Nephritis, *The British Journal of Clinical Practice*, September, 1956

ESSENTIALS OF A RESIDENCY IN GENERAL PRACTICE

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• *There is evidence of a distinct upsurge of interest in the practice of general medicine. In the whole nation, 64% of all physicians in private practice are either general practitioners or part time specialists. To satisfy the increasing demand for advanced training in general practice, more and better residencies in this field must be offered. Such a residency should be a minimum of two years, must be equivalent in standards and prestige to a specialty residency, and must be primarily of educational value to the resident rather than a service to the hospital.*

A growing interest in the training of young physicians for general practice has become apparent in many quarters, and a panel on this subject at the annual meeting of the Advisory Board for Medical Specialties is particularly significant and heartening. This increasing interest seems to parallel a renewed conviction that the position of the general practitioner in American medicine is secure.

An organized general practice residency has been offered at the University of Colorado School of Medicine since 1948. Material for this paper has been drawn from experience with this program, experience that was recently crystallized by an analysis of questionnaires returned by former residents. The annual reports of the Council on Medical Education and Hospitals of the American Medical Association, publications of the Bureau of Medical Economic Research of the American Medical Association and brochures from many general practice residency programs have also been freely used.

A decade or so ago, there was a common belief that advances in knowledge and in technical developments would soon make the general practice of medicine untenable and it would become a relic of the past, but the expected demise of the general practitioner has not come to pass. On the contrary, a distinct upsurge of interest in this type of practice may be observed among superior young physicians. There continue to be more general practitioners in the United States than the total of all specialists combined, and there are more young physicians in general practice than in all the specialties combined. The American Academy of General Practice, although one of the youngest medical societies, is larger than any national specialty society. And a sizable proportion of the current generation of medical graduates continues to choose general practice in preference to a specialty. Tables 1, 2, and 3 present data in support of these statements.

The studies of Dickinson[1] and the Bureau of Medical Economic Research of the American Medical Association (table 1) show that general practitioners constitute the great majority of physicians in active private practice (72%) in cities with populations of 10,000 or less (12,829 communities). An additional 17% classify themselves as part-time specialists—physicians who are usually more closely akin to the general practitioner than to the full-time specialist. Even in cities with populations of 100,000 or more, 40% of the physicians are general practitioners and an additional 12% are part-time specialists. In the whole nation, 64% of all physicians in active private practice are either general practitioners or part-time specialists. The age distribution of physicians in active private practice (table 2) indicates that general practitioners as a group are significantly younger than either full time or part-time specialists.

Current generations of senior medical students continue to display an interest in general practice, if one may judge by the choice of careers expressed by 552 internship applicants at the University of Colorado Medical Center Hospitals for 1955 and 1956 (table 3). The 522 senior students were drawn from 65 medical schools in the United States and Canada, and represented about 4% of all the graduates of American medical schools for these two years. The students who expressed a definite or probable preference for general practice greatly outnumbered those choosing any specialty. These applicants, however, may not represent a true cross section of American senior medical students, because the data may be distorted by being weighted with students preparing for general practice who apply here because of geographical characteristics of Colorado or because of the pioneering efforts of the University of Colorado in providing general practice residency training. Nevertheless, these data suggest that interest in general practice is far from dead among today's medical students.

There can be little doubt that the general practitioner is here to stay, but his role is changing and will continue to change. The prototype of the modern general practitioner is a highly educated, astute young physician, skilled in broad areas of practice, and particularly skilled in human relations, with an unusual ability to handle people. He is motivated by a sincere interest in mankind and the ailments that afflict it. Residency training of high quality is just as essential to him as it is to any specialist.

Opportunities for Residency Training

The type of residency offered the prospective general practitioner in the past usually consisted of either a patchwork of unorganized leftovers from specialty residencies or an extension of a rotating internship. Many physicians preparing for general practice therefore elected to take one or more years of residency in one or more specialties, and this plan continues to be a frequent choice even today. It leaves obvious gaps in their training, with little or no educational exposure to important areas of their future practice. Furthermore

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From the University of Colorado School of Medicine.

Read before the Advisory Board for Medical Specialties at the 52nd Annual Congress on Medical Education and Licensure, Chicago, Feb. 12, 1956.

the first year of a specialty residency seldom provides a well-rounded experience or a basic background even for that specialty, and it is only natural for a specialty service to give preference in appointments and assignments to those residents indicating their intention of completing the entire program

The development of the general practice residency may be traced in the Annual Reports on Internships and Residencies by the Council on Medical Education and Hospitals of the American Medical Association A 'Mixed Residency' was listed in the years prior to 1948 This title was changed to "General Residency' in the 1948 and 1949 reports These categories carried the following footnote "Mixed residencies represent general hospital experience of at least one-year duration following an approved internship All hospitals approved for intern training are also certified for general or mixed residencies It appears that these training programs were without definite educational standards and were essentially nothing more than a continuation of the internship for an additional year

The 1950 annual report listed 'General Practice Residencies' for the first time, and hospitals desiring programs under this category had to meet certain requirements The report listed 32 programs, which provided 92 positions, accounting for less than 0 5% of the 19,364 approved residency positions of all types These numbers have slowly increased, and in 1955 there were 155 approved programs, offering 614 positions, still only a little more than 2% of the now 25,486 approved residency positions of all types The growth of residency positions in the United States over the past 20 years is shown in the figure which clearly demonstrates the lag in growth and the obvious inadequacy in the number of general practice residencies available

Table 1—*Physicians in Active Private Practice in the United States April, 1950—Distribution by Size of Community**

	General Practitioners	Part Time Specialists	Full Time Specialist	Total
Cities with population of 10 000 or less (12 529 communities)				
No of physicians in active private practice	26 761	6 155	4 245	37 161
% of all physicians in communities	72	17	11	100
% of all physicians in type of practice	35	27	7	
Cities with population of 100 000 or more (107 communities)				
No of physicians in active private practice	29 529	[illegible]	[illegible]	73 886
% of all physicians in communities	40	12	48	100
% of all physicians in type of practice	39	38	62	
Total physicians in private practice in the United States	76 158	23 261	57 035	156 454
% of total physicians	49	15	36	100

* Data from Dickinson [1]

While the number of general practice residencies is clearly inadequate, the educational standards of those which do exist require critical reexamination, for there are many indications that all is not well Perhaps the most serious indictment is that great numbers of prospective general practitioners continue to seek fragments of specialty residencies in preference to the general practice residency opportunities now available This is attested to by the fact that only 66% of the meager number of approved general practice residency positions were filled for the year 1954-1955,[2] and many of those which were filled were occupied by foreign physicians In July, 1953, 38% of all general practice residents serving in approved programs were aliens This compares with 21% in approved residencies of all types, and is surpassed only by the 41% in pulmonary disease residencies [3] In the year 1955-1956, 4,174 foreign physicians were reported to be in residency training in United States hospitals in 35 different specialties The number in general medicine was surpassed only by those in general surgery [4]

Table 2—*Physicians in Active Private Practice in the United States April 1950—Distribution by Age of Physicians**

	General Practitioners	Part Time Specialists	Full Time Specialists
Median age yr	[illegible]	49 0	47 2
Age groups with the greatest number	[illegible]	40-44	35-44
Cumulatively			
% under 35	20	[illegible]	[illegible]
% under 40	35	16	22
% under 45	47	35	41
% under 50	56	51	56

* Data from Dickinson [1]

In some instances general practice residencies are offered by hospitals which are having difficulty securing interns, and one cannot help wondering whether the primary motivation may be to provide intern services The stipends paid general practice residents tend to be higher than those paid most specialty residents A median stipend of $250 per month is offered by the 155 approved general practice residencies listed in the 1955 report of the Council on Medical Education and Hospitals, and almost one-third of these hospitals offer stipends ranging from $300 to as high as $500 per month As in the case of internships, one may justly suspect that excessively high stipends may indicate a greater interest in the service aspects of the internship or residency than in the education aspects

From these considerations, one may be quite certain that the number of general practice residencies is far too small, and one may well entertain concern that many are deficient in planned educational experience The opportunities for developing really superior training programs for general practice are unlimited

Role of Surgery in General Practice

An intelligent definition of the requisites of a general practice residency can not be formulated until one has a clear picture of the role of the general practitioner On this, there is no meeting of the minds, and there are almost as many opinions as there are specialists Judging by staff regulations in a growing list of hospitals, each specialty appears reluctant to assign significant segments of its "empire' to the realm of general practice, but willingly relinquishes its unwanted chores At the same time, specialists seem to have no hesitancy in appropriating functions of the general practitioner It has been said in jest that a surgeon is a general practitioner who does not deliver babies and an internist is a general practitioner without benefit of surgical fees

There are many areas of controversy over the role of the general practitioner, but the hub of the conflict revolves around the practice of surgery How much surgery, if any, should be performed by the general practitioner? And therefore, how much surgery, if any, should be taught to the general practice resident? If four or five years of residency are required to adequately train a general surgeon, then how can we hope to cram enough of the essentials of surgery into a three-month, or a six-month, or even a full-year surgical assignment? Is it not better to teach the general practice resident no surgery at all rather than a modicum, because a little knowledge may be a dangerous thing? Is there not a real danger that a brief assignment on a surgical service may serve only to give the resident an inflated sense of self-confidence and leave him without a proper recognition of his own limitations?

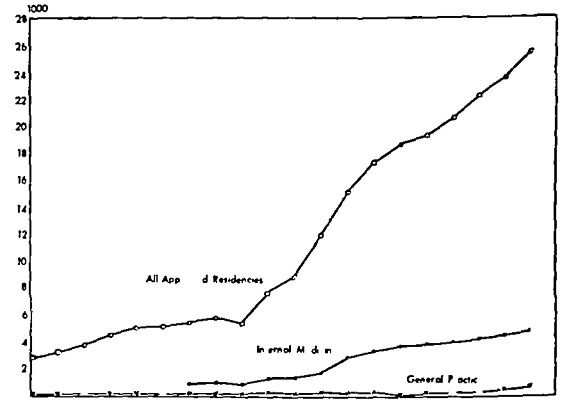
TABLE 3.—*Choice of Fields of Practice by Internship Applicants at University of Colorado Medical Center Hospitals for Two Years Beginning July 1, 1955, and 1956**

Field	Definite Choice (295 [54%])		Possible or Probable Choice (188 [34%])	
	No	%	No	%
General practice	108	36.0	90	26.0
Surgery	57	19.0	67	20.0
Internal medicine	56	19.0	73	21.0
Pediatrics	23	8.0	45	13.0
Obstetrics gynecology	23	8.0	31	9.0
Orthopedics	10	3.0	2	0.6
Psychiatry	9	3.0	11	3.0
Pathology	4	1.4	5	1.5
Radiology	4	1.4	2	0.6
Ophthalmology	2	0.7	3	1.0
Anesthesiology	1	0.3	3	1.0
Urology	1	0.3	3	1.0
Neurology			2	0.6
Dermatology			1	0.3
Ear nose and throat			1	0.3
Industrial medicine			1	0.3
Medical statistics			1	0.3
Totals	298	100	341	100

* 552 applicants from 65 medical schools in U S and Canada 66 (12%) expressed no choice

Conversely, suppose you or I should become the victim of an auto accident in an isolated area, a hundred miles or more from the nearest board-qualified surgeon Would we not be most grateful if the general practitioner who must patch us up has had even a brief period of residency training in surgery? It is not within the scope of this paper to debate the merits or the evils of the practice of surgery by general practitioners But, whether we like it or not, in many areas of this country a large portion of general surgery continues to be performed by general practitioners, and in some states their work accounts for as much as 70% of all the general surgery General practitioners will continue to perform operations even without the benefit of residency training albeit probably less ably It has long been a common practice, and one which still persists for the general practitioner to obtain his surgical education through on-the-job training, assisting older general practitioners at operations and receiving more or less supervision from them on their own cases While at times this may be a satisfactory experience, I fear that, on the average, the method tends to perpetuate all the faulty surgical techniques and obsolete operations from one generation of general practitioners to another The method is especially deficient in instilling into the neophyte a sound knowledge of the proper indications for surgery or, more correctly, a knowledge of when not to operate

Completely satisfactory answers to these questions are not at hand It is clear, however, that the objective of a general practice residency should not be to train young physicians to compete for major surgical privileges in areas where fully trained surgeons are readily available, nor should it ever be used as a training short cut for a frustrated would-be surgeon These concepts are only common sense, and are in the best interest of the patient's welfare But is it not equally clear, also in the interest of patient welfare, that surgery must be taught to those general practice residents who will be required, in an isolated area, to perform operations in cases of trauma or in emergencies? In my opinion, the general practice resident preparing for rural practice should be taught the principles of surgical diagnosis, the indications for operative and nonoperative treatment, and the essentials of preoperative preparation and postoperative care He should also be taught basic surgical techniques, especially those applicable to emergency operations and those in cases of trauma, and be given adequate opportunity to practice these under supervision Such knowledge surely will not lead him into a false sense of self-confidence or promote blindness to his surgical limitations, but quite the contrary With ever-improving transportation, and with an ever-increasing supply of fully trained young surgeons becoming available for smaller communities perhaps the present situation may be looked upon as a temporary compromise I have been impressed by the increasing number of general practice residents who do not intend to practice major surgery and who do not desire assignments on the surgical services



Growth of number of residency positions in approved programs in United States

University of Colorado General Practice Residency

Original Program.—When the general practice residency was organized at the University of Colorado School of Medicine in 1948, it was the aim of the faculty to make it equivalent in educational content and training opportunities to a specialty residency in a university teaching hospital The general practice resident, along with all others, was required to register each quarter in the clinical division of the graduate school of the University of Colorado (This requirement has now been made optional for all residents of the medical center) While accumulated experience has changed some of the concepts of the requirements, the primary objective has been maintained Originally, the faculty was of the opinion that a three-year residency was necessary to adequately prepare a young physician to enter general practice While this may still be true, it was learned that it is not realistic, for only 4 of 88 residents completed the full three years A regular rotation of services was designed to give broad experience in the major fields of clinical practice, but this was never fully implemented because the program departed from a rigid schedule and became highly flexible as to both duration and content Schedules were individually tailored in an attempt to meet the needs and desires of each resident Superficially this seemed to be an ideal plan, and it is in agreement with the recommendations of “The Essentials of a General Practice Residency’’ But serious disadvantages soon became evident This plan assumed unjustifiably that a young and inexperienced physician was in a position to know precisely what he required for practice The fallacy was disclosed by the frequency with which residents asked to change their schedules All too often, a resident would end up with an unbalanced program that was notably deficient in training for important segments of his future practice Because only a limited number of positions were available on several key services which were in greatest demand, favoring the needs and desires of some residents to the detriment of others could not be avoided After years of struggling with individualized programs, it seemed that one could never arrange a schedule that perfectly honored the needs of all It may be noted that approved specialty residencies do not offer such wide freedom of choice in assignments, nor is it deemed desirable

Revised Program —A comprehensive revision of the general practice residency at the University of Colorado became effective July 1, 1956 In its formulation, several concepts were believed to be important

1 The program should be one of graduate education having standards equivalent to those of a university hospital specialty residency

2 Two years is the minimal period of training in which a well-rounded and reasonably complete rotation can be accomplished through those clinical fields of greatest importance in general practice An optional third year is desirable for those wishing optimal training

3 General practice residents fall into two classes, those preparing for practice in rural or isolated communities and those preparing for a family-type practice in larger communities where adequate specialty consultation is available Two different programs to prepare for these two types of practice should satisfy the needs of the great majority of residents

4 Rather than flexible or individualized schedules, regular rotation of services should be arranged to insure a well-balanced and reasonably complete educational experience

5 Assignment to a clinical service should be for a long enough period for the resident to become adequately oriented to the field and its problems Three months is considered to be the minimal acceptable assignment, except for a limited number of subspecialty electives

The revised two-year program offers a choice of two types of training During the first year, the schedule of services is the same for all residents In addition to three-month assignments on the medical wards and on the pediatric service, there are two assignments which are especially designed for general practice residents In the general medical clinic, each resident serves for a period of three months Here he practices comprehensive medicine on his own patients and families, under the supervision of a full-time and volunteer faculty with special interest in this type of medicine The resident has an opportunity to follow his patients for prolonged periods by returning to the clinic one day or two half-days weekly during subsequent assignments While assigned to this clinic, the resident also works on the emergency room service

The other special assignment consists of three months spent in one of the affiliated small community hospitals staffed primarily by general practitioners Here the resident participates in small hospital practice away from a teaching medical center and in the kind of environment where he will eventually practice This experience provides insight into many of the problems that occur in small hospitals as well as the practical problems of medical economics and sociology Visits to practitioners offices in the community provide opportunities to observe and discuss equipment requirements, bookkeeping and record systems, and other essentials of practice

In the second year, the resident is offered a choice of either a “medical’ or a “surgical’ year In the ‘medical’ year, six months are divided between the psychosomatic medicine service and the medical outpatient clinics, including a variety of medical subspecialty clinics Combining these services seems more desirable than giving two three-month, full-time assignments, for it permits the resident to follow his patients over longer periods of time The remainder of the year is devoted to obstetrics (three months) and to electives (three months) There may be a second three months of pediatrics for those with a special interest in this field

The second-year ‘surgical program includes a three-month assignment on an active orthopedic and fracture service which affords both hospital and outpatient experience Six months are devoted to general surgery, the time being divided between the surgical service of the university medical center hospitals and an affiliated surgical service at the Bernalillo County-Indian Hospital at Albuquerque, N Mex This hospital service was selected because of an unusual wealth of clinical material and an exceptional opportunity for resident responsibility combined with adequate teaching supervision This is provided by a capable attending staff and two advanced surgical residents rotating from a Veterans Administration hospital These services emphasize experience in emergency surgery and that after trauma as well as common elective operations A three-month assignment on the obstetrics and gynecology service at the Bernalillo County-Indian Hospital completes the second year An individualized elective third year of residency is available for those desiring optimal training

Comment

Twelve statements may be made which summarize my conception of the essentials of a general practice residency

1 The general practice residency should be equivalent in educational standards and training opportunities to a specialty residency

2 The assignment of a resident to any service should be primarily for the educational value rather than for service considerations

3 Two years is the minimal time in which an adequate rotation can be accomplished through the clinical services which are of major importance in general practice

4 Assignment to a clinical service should be long enough to ensure an adequate orientation to the problems of the field Assignments should rarely be for less than three months, with the exception of a minimal number of subspecialty electives

5 The general practice resident should have opportunities for patient responsibility commensurate with his ability, and in general such responsibility should be equivalent to that of a first-year specialty resident

6 Experience in the management of ambulatory patients should be emphasized The resident should have an opportunity to develop rapport with his own patients and to follow them over a prolonged period, extending through the time he is assigned to various services Throughout the ambulatory patient experience, the resident should have easy access to an interested and competent staff for discussion, consultation, and guidance in clinical problems

7 Primary teaching responsibilities are best assumed by the specialist staff of the service to which a general practice resident is assigned It is believed that the specialist is best able to transmit an organized body of specialized knowledge and skills, but it is essential that he have a sympathetic attitude toward the general practice resident and a recognition of his special problems

8 If the staff of a hospital offering a general practice residency does not have an active organized general practice section, then a short affiliation should be arranged in a hospital which is staffed primarily by general practitioners, preferably in a small community hospital in a rural area

9 Two different programs of two years' duration should be offered to meet the needs of two classes o residents, those preparing for practice in an isolated community and those preparing for a family-type practice in larger communities where specialty consultation is available These should replace schedules which are flexible as to duration and content, and regular rotations of services should be provided which ensure a well-balanced and reasonably complete educationa experience

10 If surgical training is offered, it should occupy all or most of an entire year and should be designed to specifically prepare the resident to cope with traumatic and emergency situations Surgical diagnosis surgical principles, and minor surgery should b stressed Time spent in the operating room should b devoted to assisting with and performing common emergency and elective procedures rather than assisting with advanced, highly specialized operations

11 The general practice residency must be conducted in a sympathetic atmosphere, one which offer the resident a dignity and prestige equal to that of th specialty residents

12 Finally, the general practice residency should engender good attitudes and high ideals as well a skills, and should make the resident proud to be in hi chosen field The resident should be stimulated to become a lifetime student, so that, after 20 years of practice, he can truly say that he has had 20 years of experience, not one year s experience 20 times

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Monocytic Leukemia —Two varieties of monocytic leukemia are generally recognized In one (Schilling type), the leukemic cells are believed to arise from the reticuloendothelial system, because of which the terms ‘reticulosis,’ leukemic reticuloendotheliosis, and ‘histiocytic leukemia are often applied In the other form (Naegeli type), the cells are thought to arise from primitive cells in the bone marrow (monoblasts, myeloblasts) In the Schilling type there have been difficulties in distinguishing leukemia and aleukemic neoplasias from non-neoplastic hyperplasias, in the Naegeli type, monocytic and myeloid leukemias are not always clearly distinguished from each other The clinical, hematologic, and pathologic features of these two types have been described in detail Nevertheless, there continues to be uncertainty regarding the frequency and extent of reticuloendothelian participation —M N Richter, M D, Origin of Leukemic Cells in Monocytic Leukemia, *Laboratory Investigation*, March-April, 1956

EFFECTS OF CYCLOPROPANE ANESTHESIA ON THE CIRCULATION OF HUMAN BEINGS

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and
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• *Seven patients, while under various electroencephalographic levels of cyclopropane anesthesia, were studied in relation to hemodynamics. Measurements included cardiac index, pulse rate, stroke volume, peripheral resistance of the circulatory system, and central, arterial, and venous pressures. The various levels of anesthesia caused changes in most of the measurable factors, but all alterations returned to preanesthetic levels as the anesthetic was withdrawn.*

Investigations of hemodynamics during anesthesia with cyclopropane have been carried out in man and in animals. Evidence has been presented in these publications demonstrating both increased and decreased cardiac output.[1] The study described herein was undertaken to correlate cardiac output, level of arterial blood pressure, peripheral resistance, and central venous pressure with depth and duration of anesthesia with cyclopropane in man.

Method

Seven surgical patients with no discernible cardiovascular or pulmonary disease were studied (table 1). Each patient was in the supine position throughout the period of observation. In each patient loss of blood was minimal, and in no instance was a vasopressor agent used. Respirations were assisted in all but one patient.

A needle was inserted into the radial artery and connected with a cuvette oximeter[2] and strain-gauge manometer.[3] A cardiac catheter was passed centrally through an arm vein until its tip lay in the region of the superior vena cava. This catheter was connected to a strain-gauge manometer. Another strain-gauge manometer was connected to the airway assembly. An earpiece oximeter[2b] was placed. Electrocardiographic electrodes were secured to the right and left arms and the left leg. Electroencephalographic scalp electrodes were inserted in the skin over the frontal and occipital regions. Thus, the following variables were recorded continuously: blood pressure in the radial artery, central venous pressure, pressure in the airway, oxygen saturation of arterial blood, heart rate and rhythm, and the depth of anesthesia.[4]

At predetermined periods, arterial dye-dilution curves were recorded simultaneously at the radial artery and the ear, and samples of arterial blood were withdrawn to determine the pH. The dye solution in a volume of 1 or 2 cc. was injected as rapidly as possible via the catheter into the superior vena cava. The average dose of Evans blue dye (T-1824) for each curve was 10 mg. The first dye-dilution curve was recorded while the patient was conscious and breathing pure oxygen 30 minutes after the intravenous administration of 10 mg. of morphine sulfate and 0.4 mg. of atropine sulfate. Anesthesia with cyclopropane and oxygen was then induced. The second dye-dilution curve was recorded when the patient had attained a light level of anesthesia, electroencephalographic level 2. Sufficient dimethyl tubocurarine (Metubine) iodide was given intravenously to facilitate tracheal intubation during light anesthesia. The third dye curve was recorded after intubation and during light anesthesia. Deep anesthesia, or anesthesia of electroencephalographic level 4, was induced, and a fourth dye-dilution curve was recorded. The patient was permitted to return to a light level of anesthesia, and a fifth dye curve was recorded.

TABLE 1.—*Data on Seven Patients Studied While Under Cyclopropane Anesthesia**

Case No.	Age, Yr.	Sex	Weight, Lb.	Body Surface, Sq. M.
1	49	M	159	1.86
2	43	F	140	1.64
3	48	M	185	1.98
4	53	M	173	1.85
5	40	F	152	1.71
6	53	F	132	1.65
7	[illegible]	F	195	1.90

* All patients underwent cholecystectomy.

From the arterial dye-dilution curves, cardiac output was calculated by the conventional Hamilton method.[5] Stroke volume, peripheral resistance, and central blood volume were calculated also.

Results

Cardiac Index.—The cardiac index values are shown in table 2 and figure 1. The mean cardiac index of all conscious patients breathing pure oxygen was 4.2 liters per minute per square meter of body surface, with a range of from 3.2 to 6.5 liters. The cardiac index decreased in all patients in anesthesia of electroencephalographic level 2 before intubation to a mean of 3.0 liters per minute per square meter, with a range of from 2.3 to 4.2 liters. After intubation the mean cardiac index was 3.8 liters per minute per square meter, with a range of from 2.8 to 5.2 liters. When anesthesia was deepened to electroencephalographic level 4, the cardiac index decreased in all

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Read before the Section on Anesthesiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 14, 1956.

patients from that during intubation and in four patients from that at level 2 before intubation, the mean cardiac index at level 4 anesthesia was 2.5 liters, with a range of from 1.8 to 3.2 liters With return to anesthesia of electroencephalographic level 2, the cardiac index in all patients increased, the mean cardiac index was 3.4 *liters per minute per square meter*, with a range of from 2.1 to 5.3 liters

Pulse Rate.—The pulse rates are shown in table 2 and figure 1 The mean pulse rate of all conscious patients was 92 beats per minute, with a range of from 69 to 120 beats The heart rate of all patients but one decreased in anesthesia of electroencephalographic level 2 before intubation to a mean pulse rate of 74 beats per minute, with a range of from 51 to 102 beats After intubation, the mean pulse rate was 87, with a range of from 60 to 100 beats A decrease in pulse rate was found in all patients in anesthesia of electroencephalographic level 4, the mean pulse rate was 66, with a range of from 48 to 82 beats An increase in pulse rate was found on return to electrocardiographic level 2, the mean pulse rate was 80, with a range of from 60 to 102 beats

Stroke Volume.—The stroke volumes are shown in table 2 and figure 1 The mean stroke volume of all conscious patients was 43 cc per heart beat per square meter of body surface, with a range of from 36 to 50 cc The mean stroke volume in anesthesia of electroencephalographic level 2 before intubation was 41 cc per beat per square meter, with a range of from 35 to 50 cc The stroke volume in one patient increased by 13 cc after intubation When anesthesia was deepened to electroencephalographic level 4, the stroke volume decreased in all but two patients in whom no changes were noted The mean stroke volume was 37 cc per beat per square meter, with a range of from 30 to 40 cc With return to anesthesia of electroencephalographic level 2, stroke volume increased in all but one patient in whom it decreased by 2 cc The *mean stroke volume was 42 cc per beat per square meter*, with a range of from 31 to 55 cc

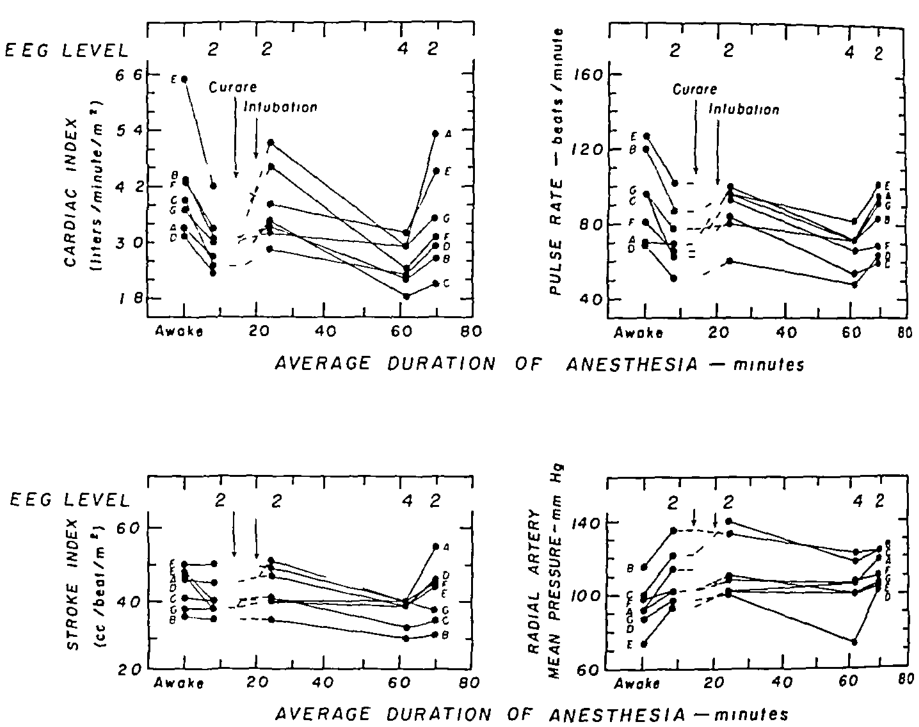

Fig 1.—Graphs showing changes in cardiac index, pulse rate, stroke volume, and mean pressure in radial artery during cyclopropane anesthesia Letters A to G represent cases 1 to 7 as listed in tables Solid dots represent average time at which observations were made and values for individual patients are connected Broken line represents average time taken to administer curare and intubate patient Cardiac index and pulse rate parallel each other closely with significant decrease in light anesthesia (electroencephalographic level 2) and further decrease in deep anesthesia (electroencephalographic level 4) and return toward values when awake on lightening level of anesthesia

Peripheral Arterial Blood Pressure.—The mean pressure in the radial artery of all conscious patients was 94 mm Hg Before intubation in all patients under anesthesia of electroencephalographic level 2, it increased to 109 mm Hg, with a range of from 94 to 135 mm Hg (table 3, fig 1) After intubation, the

TABLE 2.—*Cardiac Index Stroke Volume and Pulse Rate in Seven Patients at Various Electroencephalographic Levels of Cyclopropane Anesthesia*

	Depth of Anesthesia																		
	Awake			Level 2								Level 4				Level 2			
				Before Intubation				After Intubation											
Case No	Cardiac Index*	Pulse Rate†	Stroke Volume‡	Time§	Cardiac Index*	Pulse Rate†	Stroke Volume	Time§	Cardiac Index	Pulse Rate†	Stroke Volume‡	Time§	Cardiac Index*	Pulse Rate†	Stroke Volume‡	Time§	Cardiac Index	Pulse Rate†	Stroke Volume‡
1	3.3	70	47	15	2.7	70	38	12	5.2	100	51	46	2.9	72	40	7	5.3	96	55
2	4.4	120	36	11	3.1	87	35	11	3.3	96	35	45	2.2	72	30	6	2.6	84	31
3	3.9	96	41	6	2.5	63	40	17	3.5	84	41	50	1.8	54	34	7	2.1	60	35
4	3.2	69	45	7	2.3	51	45	17	2.8	60	47	45	2.3	48	39	10	2.9	64	46
5	6.5	112	49	7	4.2	102	40	19	3.8	96	40	45	3.2	82	40	8	4.5	102	44
6	4.3	81	50	4	3.3	66	50	17	4.6	93	49	22	2.4	66	40	8	3.1	64	45
7	3.7	96	35	7	3.0	78	38	17	3.2	80	40	13	2.9	72	40	10	3.5	92	38

* Expressed as liters per minute per square meter of body surface
† Expressed as beats per minute
‡ Expressed as cubic centimeters per beat per square meter of body surface
§ Minutes after preceding observation

mean arterial blood pressure level was 113 mm Hg, with a range of from 100 to 140 mm Hg When the patient was under deep anesthesia, electroencephalographic level 4, it was decreased in all but one patient, the mean arterial pressure being 103 mm Hg, with a range of from 73 to 122 With return to anesthesia of electroencephalographic level 2, the blood pressure level of each patient increased, the mean arterial pressure was 112 mm Hg, with a range of from 102 to 123 mm Hg

Table 3 —*Levels of Peripheral Resistance and Mean Arterial Blood Pressure in Seven Patients at Various Electroencephalographic Levels of Cyclopropane Anesthesia*

	Depth of Anesthesia													
	Awake		Level 2						Level 4			Level 2		
			Before Intubation			After Intubation								
Case No	Peripheral Resistance Dynes Sec /Cm ^{5}	Blood Pressure Mm Hg	Time Min *	Peripheral Resistance Dynes Sec /Cm ^{5}	Blood Pressure Mm Hg	Time Min *	Peripheral Resistance Dynes Sec /Cm ^{5}	Blood Pressure Mm Hg	Time Min *	Peripheral Resistance Dynes Sec /Cm ^{5}	Blood Pressure Mm Hg	Time Min *	Peripheral Resistance Dynes Sec /Cm ^{5}	Blood Pressure Mm Hg
1	1 190	92	15	1 722	114	12	866	102	46	1 546	106	7	960	119
2	1 288	115	11	2 133	13	11	1 942	133	45	2 701	122	6	2 265	123
3	1 098	100	6	1 970	122	17	1 628	140	50	2 591	118	7	2 865	123
4	1 191	87	7	1 782	97	17	1 534	100	46	1 366	73	10	1 494	102
5	520	74	7	1 039	94	19	1 930	102	45	1 542	100	8	1 078	104
6	1 103	98	4	1 478	102	17	1 939	108	22	2 238	107	8	1 678	110
7	1,047	92	7	1 430	102	17	1 486	110	13	1 422	100	10	1 287	106

* After preceding observation

Peripheral Resistance—The peripheral resistance values are shown in table 3 and figure 2 The mean peripheral resistance in the patients studied while conscious was 1,052 dynes seconds/centimeter,^{5} with a range of from 520 to 1,288 An increase in peripheral resistance was found in all patients in anesthesia of electroencephalographic level 2 before intubation the mean peripheral resistance was 1,650 dynes seconds/centimeter ^{5} with a range of from 1,039 to 2,133 After intubation the mean peripheral resistance was 1,420 dynes seconds/centimeter,^{5} with a range of from 866 to 1,942 The peripheral resistance increased in all but two patients while in a deep level of anesthesia, the mean peripheral resistance was 1,910 dynes seconds/centimeter,^{5} with a range of from 1,422 to 2,701 On return to a light level of anesthesia, peripheral resistance decreased in all but one patient, the mean peripheral resistance was 1,590 dynes seconds/centimeter,^{5} with a range of from 960 to 2,265

Table 4 —*Central Venous Pressure in Seven Patients at Various Electroencephalographic Levels of Cyclopropane Anesthesia*

		Depth of Anesthesia							
		Level 2							
		Before Intubation		After Intubation		Level 4		Level 2	
Case No	Central Venous Pressure When Awake Mm Hg	Time Min *	Central Venous Pressure Mm Hg	Time Min *	Central Venous Pressure Mm Hg	Time Min *	Central Venous Pressure Mm Hg	Time Min *	Central Venous Pressure Mm Hg
1	3	15	9	12	5	40	9	7	[illegible]
2	7	11	11	11	10	45	10	6	8
3	9	6	6	17	7	50	4	7	4
4	6	7	10	17	8	45	[illegible]	10	6
5	12	7	13	19	13	45	15	8	11
6	8	4	10	17	11	22	8	8	9
7	3	7	11	17	11	13	10	10	4

* After preceding observation

Central Venous Pressure—The mean central venous pressure of all conscious patients was 7 mm Hg, with a range of from 3 to 12 mm Hg (table 4) A significant increase in central venous pressure was found while the patient was in a light level of anesthesia, the mean pressure was 10 mm Hg, with a range of from 5 to 13 mm Hg In deep anesthesia no significant increase was evident, the mean pressure was 9 mm Hg, with a range of from 4 to 15 mm Hg On return to a light level of anesthesia a significant decrease in central venous pressure was evident, the mean pressure was 7 mm Hg, with a range of from 4 to 11 mm Hg

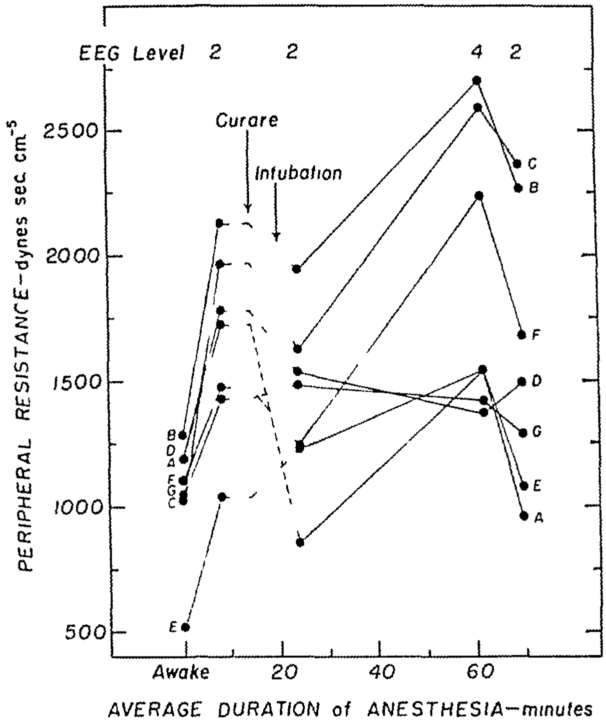

Fig 2 —Graph showing changes in peripheral resistance during cyclopropane anesthesia Peripheral resistance increased significantly at all levels of anesthesia Increase in peripheral resistance varies directly with depth of anesthesia Letters A to G represent cases 1 to 7 as listed in tables

pH of Arterial Blood—The mean pH of arterial blood was 7 34, with a range of from 7 13 to 7 50 In only one patient was a marked change in pH noted, and this was noted during deep anesthesia when the pH fell to 7 13 The lowest pH noted among all other patients was 7 23

Electrocardiographic Changes—Electrocardiographic changes were observed in one patient This change consisted of a bigeminal type of pulse, observed during a deep level of anesthesia and disappearing on lightening of the level of anesthesia

Arterial Oxygen Saturation—All patients during this study were receiving 50% oxygen or more, and the arterial oxygen saturation ranged from 93 to 100% There was no correlation between changes in arterial oxygen saturation and depth of anesthesia

Central Blood Volume—The average central blood volume before the induction of anesthesia was 1 5 liters per minute, with a range of from 0 92 to 2 1 liters There were no significant systematic changes in central blood volume with varying depths of anesthesia (table 5) Significant increases in mean circulation time of the dye [1e] were obtained during a light level of anesthesia, with no significant change in mean circulation time in deep anesthesia On emergence from deep anesthesia a significant decrease was noted Thus the mean circulation time reflected changes in cardiac output rather than in central blood volume

TABLE 5—*Central Blood Volume and Mean Circulation Time in Seven Patients at Various Electroencephalographic Levels of Cyclopropane Anesthesia*

			Depth of Anesthesia							
			Level 2							
	Awake		Before Intubation		After Intubation		Level 4		Level 2	
Case No	Central Blood Volume Liters/Min	Mean Circulation Time Sec	Central Blood Volume Liters/Min	Mean Circulation Time Sec	Central Blood Volume Liters/Min	Mean Circulation Time Sec	Central Blood Volume Liters/Min	Mean Circulation Time Sec	Central Blood Volume Liters/Min	Mean Circulation Time Sec
1	1 9	7 5	2 1	12 2	1 1	7 8	2 1	10 9	2 3	6 1
2	1 2	5 1	0,95	7 3	1 1	7 3	0 80	7 9	0 73	6 8
3	1 8	6 2	1 5	8 4	1 2	9 8	1 2	10 8	1 3	8 8
4	2 1	9 2	1 9	11 4	2 0	10 8	1 9	8 2	1 9	9 8
5	0 92	5 6	1 3	6 6	1 5	8 2	1 2	7 4	1 7	7 4
6	1 5	6 0	1 4	7 0	1 3	5 4	1 2	8 2	1 3	6 8
7	1 2	5 1	1 1	7 4	1 2	7 6	1 1	7 6	0 95	6 2

Comment

Under the conditions of these observations a decrease in cardiac index was uniformly seen with the onset of light anesthesia with cyclopropane As anesthesia deepened to level 4, the cardiac index decreased further in four of the seven patients With return of anesthesia to light levels, values for cardiac index increased rapidly toward those initially observed in all patients Therefore the decrease in cardiac index appears to be directly related to depth of anesthesia During light anesthesia the decrease in cardiac index reflects primarily a decrease in pulse rate rather than in stroke volume whereas the decrease in cardiac index in deep anesthesia reflects decreases in both pulse rate and stroke volume The decrease in pulse rate may be due to a reflex response of the heart to increased arterial pressure or may represent direct depression of that part of the heart initiating the cardiac impulse It is possible that cyclopropane directly depresses the myocardium, thus accounting for the decrease in stroke volume The observed increases in central venous pressure would be compatible with this interpretation

Since respirations were assisted in these patients, it is possible that the decrease in cardiac index was in part due to increased pressure in the airway However, it is our impression that the mean airway pressure was not greater during deep levels than during light levels of anesthesia and that the variations in cardiac index under these conditions are attributable to the cyclopropane

Peripheral resistance increased with light anesthesia and increased further during deep anesthesia However, as anesthesia was lightened again, peripheral resistance decreased rapidly Therefore, the change in peripheral resistance was related directly to depth of anesthesia It is interesting to note that the decreased cardiac output and pulse rate and the increase in mean arterial blood pressure and peripheral resistance found in this study paralleled those observations found in patients after being given infusions of levarterenol (*l*-norepinephrine) bitartrate [6] There is some evidence that the concentration of epinephrine-like substances in the blood is increased during cyclopropane anesthesia [7] The mean peripheral arterial blood pressure level was increased at all levels of anesthesia over the preanesthesia level, and, since all levels of anesthesia were accompanied by a decrease in cardiac output, it would appear that the increase in peripheral arterial blood pressure was a result of increased peripheral resistance

All hemodynamic variables returned rapidly toward preanesthetic values on lightening of the level of anesthesia This is compatible with rapid elimination of cyclopropane from the patient and offers an explanation for the value obtained after intubation During the period of intubation when the patient was breathing air, cyclopropane was rapidly lost by exhalation and anesthesia became lighter Anesthesia of electroencephalographic level 2 was induced again in each patient The resulting changes in the hemodynamic variables were probably due to failure of the patient to reach an anesthetic equilibrium at this level before observations were made

Of interest in this study was the cardiac arrhythmia that occurred in one patient (case 1) The arrhythmia occurred during deep anesthesia only and was co existent with a low pH of arterial blood and depressed respirations This was the only patient in the series whose respirations were unassisted

Summary

Hemodynamic variables were studied while seven surgical patients were in different electroencephalographic levels of cyclopropane anesthesia Cardiac index and pulse rate decreased with increasing depth of anesthesia The stroke volume showed no significant change during light anesthesia, during deep anesthesia a significant decrease was noted Peripheral resistance increased with increasing depth of anesthesia An increase in arterial blood pressure over preanesthetic levels was observed at all levels of anesthesia There was no consistent change in calculated central blood volume, but a moderate increase in central venous pressure occurred during anesthesia The hemodynamic alterations during cyclopropane anesthesia rapidly returned toward preanesthetic values on lightening of the level of anesthesia

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Hormone-Dependent Cancers—Reviewing our present knowledge of hormones in relation to cancer, we can say that certain cancers of the breast and of the prostate are hormone-dependent, in such cases, if the stimulating hormone is removed from the body by operation, or neutralized by giving an antagonistic hormone, the tumour regresses Other tumours of these organs are hormone-independent Possibly some tumours which first show a regression following removal of the hormonal stimulus but which later relapse, may have changed their character from a hormone-dependent tumour to a hormone-independent tumour, but we cannot be certain of this as yet, in some relapsing cases production of the stimulating hormone elsewhere in the body, as in the glandular "rests may bring about a reactivation of the tumour Mammary cancers may be classified into œstrogen-dependent and non-œstrogen dependent tumours If the ovaries produce almost all the circulating œstrogen in the body in some premenopausal women and the adrenals either none at all or an amount below the threshold of tumour stimulation, then there may be a regression following oophorectomy, the subsequent relapse may be due to a gradual increase in the output of œstrogen from the adrenal In other premenopausal women a regression probably only follows the removal of both the ovaries and the adrenals Within these limitations therefore we can use the terms ovary-dependent and adrenal-dependent tumours In the postmenopausal group, when the ovaries are partly atrophied, the adrenals produce most of the œstrogen, hence the removal of the adrenals as well as the ovaries is necessary to bring about a regression The evidence suggests that there is also a growth-hormone dependent tumour, so that hypophysectomy may cause a regression in some cases which have not been influenced by oophorectomy and/or adrenalectomy Many prostatic cancers are androgen-dependent and testis-dependent, dependence upon the adrenal appears to be much less common than in mammary cancers—L N Pyrah, Hormones in the Treatment of Cancer of the Breast and Prostate, *The British Journal of Surgery*, July, 1956

CYSTINOSIS IN AN ADULT

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• *In contrast to the disease in children, which is usually fatal, cystinosis (deposits of cystine crystals in tissues of the body) in the two reported instances occurring in adults was a relatively benign condition This condition, sometimes called Lignac Fanconi syndrome, should not be confused with benign cystinuria of adults, in which the cystine level in the urine is elevated but there are no crystals in tissues In the case reported, cystine crystals were discovered in the cornea and conjunctiva during a routine examination*

Cystinosis, or the Lignac-Fanconi syndrome, is a well-established entity,[1] occurring in infants and children, wherein crystals of cystine are deposited in many tissues of the body, including the cornea and conjunctiva Here the crystals can be seen, by slit-lamp examination, to have a characteristic appearance and distribution that can be differentiated readily from any other condition Patients with cystinosis usually fail to grow properly (dwarfism) and have renal tubular disease with consequent glycosuria, aminoaciduria, and hypokalemia Rarely have such patients survived the first decade of life

We have had occasion to study a normal adult who had crystalline deposits in his corneas and conjunctivas identical to those that have been described in children and infants with cystinosis The crystals had the same distribution clinically and histologically and they gave the same results histochemically and chromatographically as we and others have previously found with crystals from the conjunctivas of patients with cystinosis We are aware of only one possibly similar case of cystinosis in an otherwise normal adult, reported by Burki and Rohner[2] This was in a 50-year-old woman who was found to have crystals in the cornea that were clinically similar to those found in infants with cystinosis No crystals were seen in the conjunctiva, and no biopsy was done Systemic investigation showed only a questionably significant aminoaciduria

The significance of these two cases lies in the inference that cystinosis in the adult is a benign condition, in contrast to the disease in children, which is almost universally fatal

Report of a Case

The patient was a 23-year-old university student who was incidentally discovered to have crystals in his cornea and conjunctiva during a routine examination for refraction The only symptoms referable to his eyes were those attributable to a low degree of myopia Excepting for one occasion when at the age of 9 years he was told that urinalysis indicated that he had diabetes, he had had no significant medical abnormality and he had developed normally The results of several subsequent urine tests and one blood sugar determination were said to have been normal

The patient was 6 ft (183 cm) in height, weighed 180 lb (81 6 kg), and showed normal osseous and muscular development Nothing of significance was found on physical examination except mild acne of the face and back The blood pressure was 152/84 mm Hg There were no tophi and there was no limitation of joint movement and no enlargement of the liver

The only significant abnormality found was in the eyes and here the changes could be seen definitely only on slit-lamp examination The faintest possible haze of the cornea could be seen by the naked eyes with strong focal illumination, and nothing abnormal could be seen by ophthalmoscopy The corrected visual acuity was 20/15 in each eye When viewed by slit lamp biomicroscopy, however, the corneas were seen to be uniformly studded with a myriad of highly reflectile particles situated in the anterior half of the stroma centrally but extending throughout the entire thickness of the stroma peripherally In this latter region a lamina of the particles was situated just in front of the posterior surface extending several millimeters toward the pupillary area so that the particles had an hourglass distribution in the periphery of the cornea The particles extended across the limbus without any line of demarcation

The individual particles appeared with the high magnification (×20) to consist of conglomerates of highly reflectile polychromatic needles arranged in a random fashion They did not fluoresce with ultraviolet light An attempt was made to photograph them with the Donaldson camera (*fig 1*)

The conjunctivas also showed numerous abnormal deposits scattered throughout the superficial stroma In apparent contrast to those in the cornea, these particles appeared chalk-white and nonreflectile They were more obviously clumped and not as uniformly distributed as in the corneal stroma They did not appear to be oriented about the blood vessels or any other recognizable structure of the conjunctiva Because of the white background of the sclera, they were less conspicuous than those of the cornea and could not be photographed

A preliminary urinalysis done prior to the patient s hospitalization showed a trace of reducing substance in the urine when it was tested with Fehling s solution, but subsequent 24-hour specimens showed no reducing substances The alpha amino nitrogen excretion in a 24-hour urine sample was 89 mg per liter with a total nitrogen level of 16 2 Gm per liter, thus showing that 0 55% of the nitrogen in the urine was directly attributable to amino acids The uric acid level was 81 mg per 100 cc Blood studies, interpreted as normal, gave the following results the level of uric acid was 5 3 mg per 100 cc of carbon dioxide, 32 mEq, of sodium 137 mEq, of potassium 4 4 mEq, and of chlorides 100 mEq per liter, the pH was 7 48

An elliptical piece of conjunctiva measuring 4 by 7 mm was removed from the temporal portion of one eye for chromatographic and histological study Sections were cut with the specimen in the fresh-frozen state and after it had been fixed with alcohol After approximately 30 sections had been cut the remaining tissue was placed in 5 ml of 4% formaldehyde solution for 18 to 20 hours This dissolved out the crystals (as shown by section of the remaining tissue), and the formaldehyde solution was filtered and brought to dryness in a vacuum The residue was repeatedly dissolved in 1 *N* hydrochloric acid and dried to insure total removal of the formaldehyde The residue was then dissolved in 5 ml of water and dried to remove the hydrochloric acid Finally, the dried residue was dissolved in 0 1 ml of 0 1

From the Howe Laboratory of Ophthalmology Harvard Medical School and the Massachusetts Eye and Ear Infirmary

N hydrochloric acid and the solution concentrated to 10 to 20 microliters The concentrate was spotted on Whatman no 1 filter paper for chromatographic separation and identification

Formaldehyde extracts were prepared in this way on two separate pieces of conjunctiva and chromatographed in two dimensions, with use of butanol acetic acid water (4 1 5) for one dimension and water-saturated phenol containing a 0 1% cyanide solution in the chamber for the second dimension The chromatogram was developed by ascending technique, with 21 hours in butanol acetic acid water and 20 hours in water-saturated phenol The papers were then dried and sprayed with a 2% alcoholic solution of ninhydrin for location of position of the amino acids

Solutions of 22 known amino acids were run in the same solvent systems for the same length of time for reference, but only those for which the results corresponded to the results with the spots obtained from the biopsy specimen will be mentioned Extraction and chromatography were done similarly on conjunctival biopsies obtained from two normal persons The specimen obtained from the patient here described showed spots corresponding to aminoacetic acid (glycine), tyrosine serine, oxidized glutathione cystine, alanine and leucine, while the two control specimens showed cystine, serine, leucine and alanine Although the control specimens were of the same approximate size as the test specimen the chromatographic spots were weaker for all the amino acids by a factor of approximately 3 These results were interpreted as indicating that the patient in question did show an abnormal amount of cystine in the conjunctiva as well as an excess of several other amino acids Chromatography has previously been employed several times for the identification of the conjunctional crystals in infantile cystinosis [3]

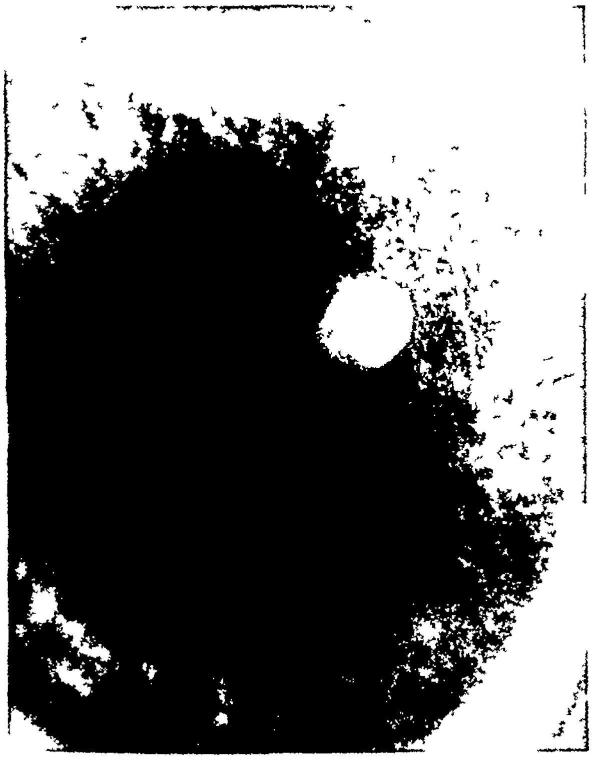

Fig 1 —Photograph of eye Highly reflectile particles can be seen about image of light reflected from cornea Actually crystals were uniformly distributed over entire anterior portion of cornea

Sections of the fresh-frozen and alcohol-fixed tissue showed abundant crystals in the region of the epithelial stromal junction, without any reaction on the part of the tissue (fig 2) The crystals were predominantly rectangles of various sizes, but all were less than 10μ, with occasional squares and hexagons Many were vividly birefringent (fig 3) The crystals appeared to be free in the tissue and were often present as clumped masses such as had been seen clinically None were definitely intracellular

The preponderance of the crystals in the epithelial-stromal area was a conspicuous feature Some of the crystals appeared to be within the deep epithelial layers and some in the most superficial stroma, but none were more than 0 5 mm from the junction Many clumps seemed to be aggregates about the rete pegs There were no concentrations in the walls of blood vessels such as we have observed in a case of infantile cystinosis [3c] The crystals did not take the eosin or hematoxylin stains, but, as previously found in the case of infantile cystinosis,[3c] they were outlined by the silver of the von Kossa stain and their visibility was thereby enhanced

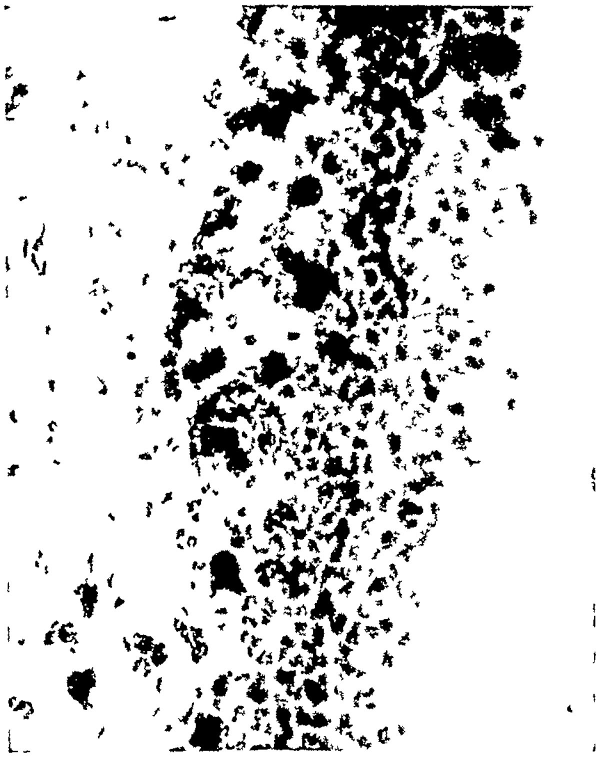

Fig 2 —Biopsy specimen of conjunctiva stained according to the von Kossa technique Crystals blackened by reduced silver can be seen predominantly situated at epithelial-stromal junction

To determine whether the crystalline deposits in the present case were identical with those in classic cystinosis of infancy, a series of sections from the present patient and from a patient with a proved case of cystinosis [3c] were immersed in solutions of different pH for various lengths of time In all instances it was found that the crystals were readily soluble in solutions of sodium hydroxide having a pH of 9 or more and slowly soluble in the pH range of 6 to 9 In acid ranges (hydrochloric acid) the crystals were more slowly soluble Known cystine crystals embedded in gelatin and treated in the same way behaved similarly The crystals in the tissue of the present patient were insoluble in ether, acetone, and chloroform and only slightly soluble in methyl alcohol and ethyl alcohol

Finally, the specificity of the crystals as cystine was established by determining their relative insolubility in a cystine-saturated solution Sections from the present patient and from a patient with known cystinosis were immersed in phosphate buffers adjusted to pH 3 8 Whereas the crystals began to disappear in about 15 minutes in solutions that had not had cystine added, they showed no change in 24 hours time in solutions that were saturated with cystine This procedure, suggested to us by Dr Morton Grant, does not appear to have been employed previously in identification of crystals in cystinosis, but it is a simple and seemingly reliable test of considerable specificity

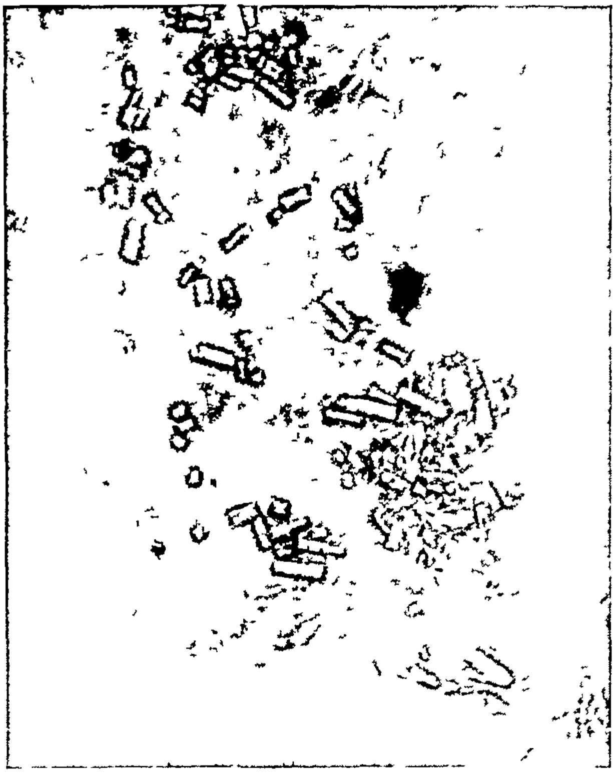

Fig 3 —Photograph of crystals in tissue taken through crossed polaroids

Comment

There can be little doubt of the identity of the ocular findings in this case and in cases of juvenile cystinosis The clinical and histological findings are identical, and the chromatographic findings and results of solubility studies are consistent with such an identification It was not possible in our case, nor in the one probably similar case previously reported, to obtain material from tissue other than the eye, but it would seem most unlikely that this deposition of crystals was limited to the cornea and to the conjunctiva It is also not possible to state how long the crystals had been present in our patient Thus we cannot state that the present case arose *de novo* in the adult What is important is that this case and the one previously reported by Burki and Rohner[2] show that, in the adult, cystine crystals may be deposited in tissues abundantly without necessarily involving a grave prognosis such as is the case in infantile cystinosis

The present case is, of course, not to be confused with the so-called benign cystinuria of adults This latter process, which appears to be due to lowered renal threshold, differs in that the cystine level in the urine is elevated but there are no crystals in tissues

The deposition of crystals in cystinosis is believed to be associated with the relative insolubility of cystine in body fluids In our patient, the striking predilection of the deposits for the subepithelial zone of the cornea (and to a lesser extent for the subendothelial region of the cornea) and for the epithelial-stromal boundary of the conjunctiva suggests that the epithelium, notoriously high in sulfhydryls, favors the local precipitation of cystine or accumulation of excess cystine

Summary

A case has been discovered of what is believed to be cystinosis in an otherwise healthy adult This is the second case of its kind in the literature and the first to have been studied histochemically and chromatographically Cystine crystals were found abundantly in the cornea and conjunctiva Although the ocular features were identical, clinically and pathologically, with those often observed in cystinosis of infants and children, the clinical course of the disease is entirely different Whereas its pediatric counterpart is accompanied by dwarfism, renal tubular insufficiency, and usually death within the first decade, the disease in the adult is entirely benign

Addendum

Since the foregoing report was submitted, Mr Jeremiah Silbert of this laboratory has succeeded in dissecting out a small quantity of the individual crystals by means of micromanipulation These crystals were subjected to chromatographic analysis (butanol acetic acid water) and found to have the same approximate Rf value as a control sample of cystine, and these values coincide most nearly with those for the cystine extracted from the conjunctiva, as described in the paper

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ETIOLOGICAL ROLE OF SODIUM CHLORIDE INTAKE IN ESSENTIAL HYPERTENSION IN HUMANS

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• The possibility that a high dietary intake of sodium chloride might predispose an individual to hypertension was investigated by classifying 1,346 adults according to their blood pressure and again according to their habitual consumption of table salt The 105 persons classified as hypertensive were found not to be randomly distributed, there were 61 among the 581 persons with high salt intake, 43 among the 630 with average salt intake, and 1 among the 135 with low salt intake The departure from randomness of distribution was not explainable as an accident of sampling, and the association between salt intake and hypertension was accepted as significant Further classification of the subjects as thin, average, overweight, and fat showed that obesity further increased the probability of hypertension in people on high salt intake

In 1954 we presented evidence that was interpreted to indicate a relationship between the level of sodium intake and human essential hypertension [1] The original series of observations on 547 subjects has now been extended to include a total of 1,346 adults The earlier findings have been confirmed the data are highly suggestive of a correlation between salt (i e , sodium chloride) intake and the incidence of hypertension

The original paper [1b] may be consulted for details of the rationale The possible role of sodium in the etiology of essential hypertension in humans was suggested by (1) the need for sodium in the production of certain forms of experimental hypertension [2], (2) the virtual absence of hypertension among primitive races, all of whom appear to have a low-sodium diet [1b], and (3) the amelioration of hypertension in some persons by restriction of sodium [3] Given these three observations, the following question was suggested Did individuals who had an apparently higher salt intake have significantly more hypertension than those with a lower salt intake? If the answer were that high salt intakes were indeed associated more frequently with hypertension, a cause effect relationship would certainly be implicated, although not necessarily established While the effects of sodium and chloride could not be separated here, all experimental and clinical evidence indicated that it was the sodium, not the chloride, ion that was important For this discussion, therefore, the terms sodium chloride and salt may be interpreted to refer only to sodium

Material and Method

Early in 1953 the present study was begun on every member of the Brookhaven Laboratory staff who reported for annual physical examination to one of us (R A L) Both scientific and nonscientific personnel were included, and no selection by the physician occurred However, the following selective processes were known to be in operation 1 Pre-employment physical examinations would tend to eliminate individuals with serious diseases of any sort 2 Because of the laboratory's young age (about 10 years) and the character of the research (the study of the atomic nucleus and isotopes), the mean age of the scientists as well as their associates probably would be lower than the national average 3 The employment policies at the laboratory limited the age range to from 18 to 65 4 Females had the frequently exercised prerogative of being examined by a woman physician, so that the total sample had a 5 1 ratio of males to females

In our society it seemed likely that the major source of variation in salt intake might derive from the addition of salt at the table by the individual concerned Of perhaps equal importance, however, was the fact that this addition of salt could be qualitatively analyzed over a lifetime With this rationale in mind, each person was questioned as to his salt intake and classified into one of three groups, as follows 1 Low intake—this individual denied adding, or ever having added, salt to his food at the table (the present widespread use of low-sodium diets made it imperative to specify whether the separation from salt shakers had been recent or lifelong) 2 Average intake—this individual added salt to his food, if after tasting, it was insufficiently salty for his palate 3 High intake—this person routinely added salt to foods customarily salted before tasting them An individual who would have been classified as a member of the high or average groups by past habits, but who had changed to average or low intake for any reason, was classified as a member of the group with the greater intake to which he had belonged formerly

As mentioned earlier,[1b] certain defects in this type of classification were obvious 1 It lacked precision in estimating the intake 2 No allowance was made for variation in the salt content of foods prior to their arrival at the table due to natural variations in content as well as those diversities due to preparation, preservation, and cooking 3 No provision was made for differences in perception of saltiness among individuals or even possibly in the same individual at different times Despite these known limitations, it was believed that with sufficient members in the series some or all of these variables might be canceled out and the conceptual implication of a low versus a high salt intake might be tested

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At the time of the physical examination, record was made of the subject's age, sex, blood pressure, race, and nutritional state. The number of non-Caucasians proved to be so small that race has been disregarded in the calculations. Estimates of nutritional state were based upon the undressed appearance, from which each patient was classified as thin, normal, overweight, or fat. Although this classification was not exact, there appeared to be no need for more detailed anthropometric classification. The blood pressure was measured with a mercury sphygmomanometer while the patient sat quietly in the upright position with the arm resting easily on the examiner's table. Systolic and diastolic blood pressure levels were assumed to be represented by the first and fourth auscultatory phases, as recommended by a committee of the American Heart Association.[4] Hypertension was defined as a level of at least 140 mm. Hg systolic in combination with a pressure of at least 90 mm. Hg diastolic. If the blood pressure was not in this (defined) hypertensive range at the time of the examination but previous incontestable records of such elevation were available, this fact was noted and such individuals were classified as having hypertension. Although not all persons with transient elevations of blood pressure will develop sustained hypertension, available data suggest that among such individuals the disease occurs at least two or three times more often than in persons without such transient elevations.[5] It might be of added significance if even these persons with possible hypertension were found to be absent in the low-intake group.

TABLE 1.—*Uncorrected Data on Salt Intake and Incidence of Hypertension in Humans**

Sodium Chloride Intake	Total Subjects No.	Total Subjects % of Total	Subjects with Hypertension No.	Subjects with Hypertension % of Intake Group
Low	135	10.0	1	0.7
Average	630	46.8	43	6.8
High	581	43.2	61	10.5
Total	1,346	100.0	105	7.8

* The distribution of subjects with hypertension was significantly different among the three groups as tested by the chi square distribution with $\chi^2 = 16.1$ and $p<0.001$.

TABLE 2.—*Sodium Intake by Age and Sex of Subjects**

Sodium Chloride Intake	Age, Yr.	Males No.	Males % of Intake Group	Females No.	Females % of Intake Group
Low	35.2(±9.2)	101	74.8	34	25.2
Average	34.7(±10.3)	522	82.9	108	17.1
High	34.4(±10.0)	501	86.2	80	13.8
Total	34.6(±10.0)	1,124	83.5	222	16.5

* Sex distribution significantly different among the three groups ($p<0.01$).

Observations

The uncorrected data on 1,346 consecutive patients are shown in table 1. (Data on three subjects were excluded as of no consequence in the present study.[1b]) Very briefly, among the 135, 630, and 581 members of the low, average, and high sodium chloride intake groups, there were 1, 43, and 61 persons with hypertension respectively. The group with average salt intake had an incidence of hypertension that did not differ significantly from that predicted by random distribution and therefore is irrelevant to the development of the thesis in this paper. This table indicates that the probability that a distribution of hypertension like that found among these three groups would occur by chance is less than 1 in 1,000 (chi square = 16.1, $p<0.001$). From table 2, it is evident that, while mean ages were the same among the three groups, sex distribution differed significantly, with more females in the low-intake group. Although this difference probably is of no importance at these ages, the data were then analyzed for the 1,124 males, as shown in table 3. The findings remain essentially unchanged from those shown in table 1. Again there was a high degree of statistical significance to the distribution among the three groups ($p<0.001$). When tested against null value, the low-intake group had significantly less ($p<0.01$) hypertension and the high-intake group had significantly more ($p<0.02$) hypertension than would have occurred by chance alone.

The nutritional classifications of the 1,124 male subjects are outlined in table 4. There was no significant difference among the three salt-intake groups, however, the percentage of overweight or fat individuals (46.5%) among the males with hypertension, shown in table 5, exceeded that among the entire male population (26.8%) to a significant degree ($p<0.001$). For statistical analysis the four nutritional groups were combined into two: thin and normal became "non-overweight," and overweight and fat became "overweight." Comparisons then were made among individuals who were classified as having low or high salt intakes and who were overweight or non-overweight. Table 6 summarizes the significant differences found by such comparisons. The following conclusions may be drawn from the data in table 6: 1. Individuals who are not overweight but who are on a high-salt diet will have several times the incidence of hypertension found in similar individuals on a low-salt diet. 2. Among individuals who are on a high-salt diet, those who are overweight will have significantly more hypertension than will those who are not overweight. 3. Those individuals who are both overweight and on a high-salt diet will have a much greater incidence of hypertension than will individuals not overweight and on a low-sodium diet.

TABLE 3.—*Corrected Incidence* of Hypertension in Males Only*

Sodium Chloride Intake	Age, Yr.	Total Subjects No.	Total Subjects % of Total	Subjects with Hypertension No.	Subjects with Hypertension % of All with Hypertension	Subjects with Hypertension % of Intake Group
Low	36.8(± 9.4)	101	9.0	1	1	1
Average	36.1(±10.7)	522	46.4	38	39	7.3
High	35.7(±10.2)	501	44.6	58	60	11.6
Total	36.0(±10.4)	1,124	100	97	100	8.6

* For all three groups $\chi^2 = 14.3$ and $p<0.001$; for low intake group $\chi^2 = 7.42$ and $p<0.01$; for high intake group $\chi^2 = 5.54$ and $p<0.02$.

Comment

One important question still to be answered is whether the three salt-intake classifications used in this study have any relation to actual salt ingestion Originally [1b] it was thought that the classification might be useful for the low and high groups but that probably the average group would extend over the entire spectrum from low to high Some preliminary data suggest that this is correct A series of individuals from all three groups, with and without hypertension, has now been studied by collecting all urines for a minimum period of 7 days (and up to 38), from which an accurate index of sodium intake can be realized [6] From these data it is pertinent to note that the individuals with a low intake without hypertension had significantly lower urine sodium outputs (and therefore intakes) than the persons with hypertension, whatever the group into which the latter had been classified in this study Furthermore, the single subject with a low intake who was found to have hypertension had a urine sodium level like that of the other hypertensives, rather than similar to that of the other members of the low-intake group From these unpublished observations, it is likely that the following conclusions will emerge the arbitrary low-average-high classification based on the use of salt at the table, which was devised for exploration of a theory, probably is generally valid It will, however be subject to individual exceptions, because of the defects noted earlier in this paper However the data suggest that among those individuals who actually have a low-sodium diet, as measured by urine sodium level hypertension will be significantly less than among those people who have a high-sodium diet judged in the same fashion Therefore, the original thesis seems valid, namely, that there is a significant relationship between the level of sodium intake and the development of essential hypertension

TABLE 4 —*Nutritional Grouping of 1 124 Males*

	Sodium Chloride Intake								
	Low		Average		High		Total		
Nutritional Groups	No	%	No	%	No	%	No	%	
Thin	16	15 8	70	13 4	75	15 0	161	14 3	73 2
Normal	62	61 4	314	60 2	[illegible]	57 0	662	58 9	
Overweight	20	19 8	112	21 4	116	23 2	248	22 1	26 8
Fat	3	3 0	26	5 0	24	4 8	53	4 7	
Total	101	100 0	522	100 0	501	100 0	1 124	100 0	

The question will be asked as to whether the enhanced salt intake of individuals predisposed to or with hypertension is caused by, rather than a cause of, the disease It has been suggested that persons with hypertension have an increased appetite for salt [7] The present report cannot exclude this possibility It may be pertinent to note, however, that for eight years one of us (L K D) has used drastic prolonged limitation of sodium (40-125 mg per day) in the study and treatment of patients in all stages of this illness This was done under metabolic ward conditions, without evidence of salt-craving, such as might be expected if excessive salt appetite were part of the disease Since many of these patients had been very heavy users of salt prior to such reduction, this probably is relevant to the present discussion

TABLE 5 —*Nutritional Grouping of Males with Hypertension*

	Sodium Chloride Intake			Total		
Nutrition Groups	Low	Average	High	No	%	
Thin		2	3	5	5 1	53 5
Normal		19	28	47	48 4	
Overweight		13	20	33	34 1	46 5
Fat	1	4	7	12	12 4	
Total	1	38	58	97	100 0	

It seems fairly well established that essential hypertension occurs more commonly in certain families than in others [8] If this represents true hereditary rather than common environmental factors, it does not mean that heredity alone is sufficient In rheumatic fever, for instance, hereditary factors are known to be important [9], yet, if streptococcic infections are avoided with prophylactic antibacterial therapy, rheumatic fever does not result [10] We would like to suggest that similarly, in the individual hereditarily predisposed to essential hypertension, the actual etiological agent is environmental, namely, the level of ingestion of salt In people without such hereditary predisposition, resistance to the effects of ingestion of sodium might be greater, but this resistance could be overcome by a greater ingestion over a longer period

The failure of many people on a high-salt diet to develop hypertension does not necessarily invalidate the proposed hyothesis With most disease inciting agents, exposures of apparently equal degree of *different individuals* will be followed by development of the disease in some but not in others Presumably in essential hypertension there are unknown factors that are of importance in modifying the effect of a given level of ingestion of sodium

It is known that overweight individuals suffer from hypertension more commonly than do non-overweight subjects [11] Could it be that in eating more food generally, more salt is ingested simultaneously? This is one possible explanation at least

TABLE 6 —*Statistically Important Difference* in Incidence of Hypertension in Males Only*

Non overweight subjects	
High sodium chloride intake vs Low sodium chloride intake	$X^2 = 7 2$ p<0 01
High sodium chloride subjects	
Overweight vs Non overweight	$X^2 = 10 8$ p = 0 001
Combination resulting in greatest statistical significance	
High sodium chloride intake overweight vs Low sodium chloride intake non overweight	$X^2 = 16 97$ p<0 001

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* In each pair the first group has the greater incidence of hypertension The significance of the difference in incidence of hypertension was estimated by the standard chi square test

In view of the foregoing considerations, it is proposed that the level of sodium intake is the primary etiological factor in the development of essential hypertension

Summary and Conclusions

Among 1,346 adults who were classified according to their sodium chloride intake at the table, there were only 135 classed as having a low intake, while there were 630 and 581 in the average-intake and high-intake groups respectively The 105 persons with hypertension were distributed among the salt-intake groups in nonrandom fashion as follows low intake, 1, average intake, 43, and high intake, 61 Tested by the chi-square method, the probability of such a distribution of hypertension occurring by chance was found to be less than 1 in 1,000 The group with low salt intake had significantly less and the group with high salt intake significantly more hypertension than would be expected from random distribution

By dividing all individuals into overweight and non-overweight groups in addition to the sodium chloride categories, the following statistically significant ($p<0\,01$) conclusions can be derived 1 Individuals who are not overweight but who are on a high-salt diet will have several times the incidence of hypertension found in similar individuals on a low-salt diet 2 Among individuals who are on a high-salt diet, those who are overweight will have significantly more hypertension than will those who are not overweight 3 Those individuals who are both overweight and on a high-salt diet will have a much greater incidence of hypertension than will individuals not overweight and on a low-sodium diet The hypothesis is submitted that the level of sodium intake is the primary etiological factor in the development of essential hypertension

Phelps Crump, Ph D assisted on all statistical matters in this study

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Chemotherapy of Renal Tuberculosis—An analysis of 219 consecutive autopsies in patients with tuberculosis since the introduction of modern chemotherapy reveals a striking contrast with the pre-chemotherapy findings Almost all of these patients had prolonged antituberculosis therapy with alternating courses of several drugs A number of observations in this series are worthy of note The real surprise, however, is the very low percentage of minimal tuberculous involvement While in 1028 autopsied cases without chemotherapy there were 279 with minimal lesions, in those with prolonged treatment with antituberculous drugs there were only 7 instances of military foci in 219 cases This point alone should prove the effectiveness of antituberculous chemotherapy in curing minimal lesions or preventing them at the end stage of hematogenous dissemination In this latter series, the patients with minimal renal foci and tuberculous involvement of the prostate were symptomless Of five cases with organ tuberculosis, four were symptomless, though all had intermittent pyuria There seems to be little doubt that minimal renal tuberculosis should be treated with chemotherapy However, a practical difficulty lies in the determination of the extent of the tuberculous lesion in the kidney The usual diagnostic procedure sometimes inaccurately delineate the extent of the disease Chemotherapy is indicated in every case of renal tuberculosis, although its effectiveness may be limited by the nature of the disase present Overall effectiveness has been marked and has been reported in several large series—A Sporer, M D , and G D Oppenheimer, M D , Renal Tuberculosis, *Journal of the Mount Sinai Hospital,* July-August, 1956

CLINICAL NOTES

CYSTICERCOSIS CEREBRI–CESTODE INFESTATION OF HUMAN BRAIN

REPORT OF A CASE OCCURRING IN LOUISIANA

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Invasion of the central nervous system of man by the larval form of the pork tapeworm is rarely encountered in the United States [1] and Canada, and previous studies from these countries have reported individuals who were former residents of known endemic areas However, in South America and certain countries of the Far East, the prevalence of cysticercosis cerebri is relatively high because of the greater frequency of intestinal infestation with Taenia solium in man This difference in prevalence is due in part to the fact that raw pork is not usually eaten in the United States and Canada and also that these countries have public health laws regarding the disposal of garbage and the inspection of meat for human consumption The purpose of this paper is to present a case of cerebral cysticercosis of the racemose type that was apparently contracted in Louisiana

Cysticercosis is caused by larvae of the cestode T solium The usual intermediate host, the pig, becomes infested with the parasite as a result of ingesting material contaminated with egg-laden feces The eggs hatch, and the larvae penetrate the wall of the pig's intestine, eventually becoming encysted in various sites, particularly the skeletal muscles

According to Faust,[2] man may become infested in a similar manner The sources of the eggs that humans ingest are (1) feces from a person who harbors an adult tapeworm (heteroinfection), (2) feces containing eggs that are transferred from anus to mouth by unclean hands of an infested person (external autoinfection), and (3) the small intestine, from which ripe eggs may be carried by reverse peristalsis into the stomach, where they are conditioned for hatching (internal autoinfection) The eggs hatch in the upper portion of the small intestine, and the larvae quickly penetrate the intestinal wall, entering the lymphatics and blood vessels They are then widely and fortuitously distributed and develop into cysticerci at the site of localization

The morphogenesis of cysticerci in the tissue has been described as taking place by a proliferation of the body wall of the larva together with central liquefaction and cavity formation A scolex develops and invaginates into the preformed cavity, giving rise to the so-called bladder worm In most locations within the host the cyst reaches its full size (about 1 cm in diameter) in approximately 10 weeks [3] The skeletal muscles, the chambers of the eye, and the central nervous system are the sites in which cysticerci most frequently are observed In skeletal muscle they excite a fibroblastic proliferation and are soon surrounded by a fibrous capsule These lesions eventually calcify Within the central nervous system, the larvae may localize within the leptomeninges or brain substance Localization within the parenchyma is followed by encapsulation and calcification Within the leptomeninges, a single cyst may develop numerous irregular projections that may extend into the brain parenchyma On section, such lesions appear multicystic or racemose The racemose type of cysticercosis develops in the leptomeninges overlying the brain stem and cerebellum In this location, projections of the cyst may extend for distances as great as 15 cm Within the brain parenchyma, individual larvae seldom produce lesions that exceed 1 cm in diameter

Dixon and Hargreaves [4] have established the importance of parenchymal cysticercosis cerebri as a causative factor of epilepsy in persons who previously lived in the Far East Wilson [5] has described the pathological changes that occur in the leptomeninges and brain parenchyma In addition, he emphasized the frequency with which these parasites form racemose cysts when they localize in the leptomeninges of the posterior fossa Bickerstaff [6] observed that the racemose lesion located at the base of the brain was more common in older subjects, whereas parenchymal involvement tended to occur in younger persons Within the parenchyma of the central nervous system the larvae may eventually become calcified and are then demonstrable roentgenographically As long as the larvae remain alive, only a minimal local inflammatory reaction is provoked The death of the larvae produces an intense local granulomatous inflammation in the leptomeninges, with foreign-body giant-cell reaction and fibrosis [7] South American authors have reported that in some regions approximately 25% of all hospital patients admitted with symptoms suggesting the presence of intracranial space-occupying lesions had, in fact, cysticercosis cerebri of the racemose type [8]

The neurological symptoms of cysticercosis cerebri occur late in the course of the disease,[9] but focal or localizing clinical signs rarely develop Increased intracranial pressure, which occurs in the racemose type, causes papilledema, headache, nausea, and vomiting Mental deterioration and personality changes are common in the advanced stages of the disease of both the parenchymal and racemose type

Diagnosis is difficult during the early stage of larval invasion, and cerebral symptoms are not a clinical feature Eosinophilia of the peripheral blood occurs only during the acute stage of generalized dissemination A history of the passage of tapeworm segments in the stool may suggest the diagnosis The cerebrospinal

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From the Department of Pathology, Tulane University School of Medicine and Charity Hospital fluid may show a rise in the protein level and a pleocytosis that may be lymphocytic, neutrophilic, or predominantly eosinophilic during the early stage of central nervous system invasion When subcutaneous nodules are present, histological examination of the excised nodule reveals the intact Cysticercus During the early stage of dissemination, a microscopic study of a pepsin digest of excised muscle may reveal the larvae Months or years after the acute symptoms subside scattered focal areas of calcification within the brain parenchyma or striated muscle may be the only signs suggestive of previous infection The most frequent neurological symptoms at this late stage of the disease are epileptiform seizures and mental deterioration—usually, however, without evidence of increased intracranial pressure

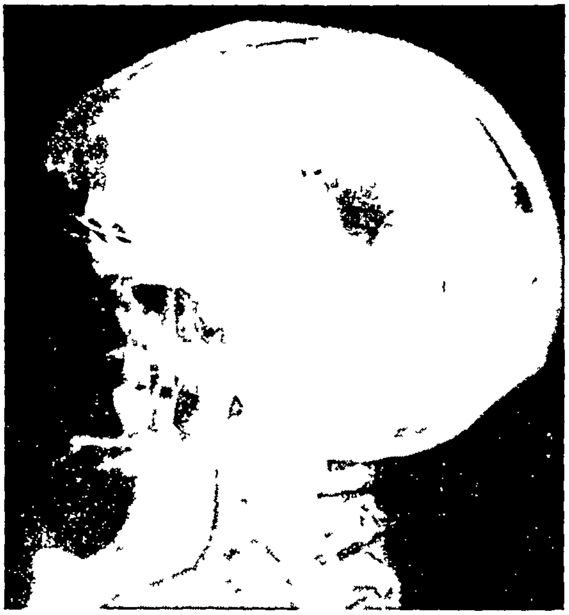

Fig 1 —Ventriculogram showing dilation of lateral ventricles

Report of a Case

History —A 44-year-old farmer was admitted to Charity Hospital Tulane University neurology and neurosurgery services on March 3 1954 with complaints of a slowly developing muscular weakness of the lower extremities urinary incontinence for the past month and periodic headaches of two years duration In the spring of 1951 he first noticed severe left frontal headaches of an episodic nature General physical and neurological examinations then had failed to reveal the cause and roentgenograms of the skull were normal

He did not seek further medical aid until the spring of 1953 at which time the severity of the headaches was markedly increased In the interim since the spring of 1951 his family had noticed regressive changes in his personality Spinal puncture at this time revealed a moderately elevated spinal fluid pressure, a mild pleocytosis and a slight increase in the spinal fluid protein level He was advised to enter the hospital but did not do so until September, 1953 at which time he refused further diagnostic studies and was discharged to the care of his physician After this hospital visit his condition deteriorated rapidly, and he became irritable voluble, and suspicious He displayed defects in judgment and impairment of memory He complained of muscular weakness of both legs and an increasing unsteadiness of gait His condition became progressively worse, and in November, 1953, he was forced to stop work as a result of his mental and motor difficulties In the course of the next three months he had several episodes of unconsciousness, although no convulsions were reported In the month before his final admission in March, 1954 he became disoriented at intervals, and nary incontinence developed

Prior to the onset of the illness in 1951, the patient had had no serious disease His family history was noncontributory He had never traveled outside the state of Louisiana except into Mississippi for a brief period

Physical Examination —On admission to Charity Hospital on March 3 1954, the patient was well nourished and did not appear to be acutely ill He was fairly well oriented His gait was ataxic Deep tendon reflexes were normal, and no abnormal reflexes were elicited Extraocular movements were normal The right pupil was slightly larger than the left Both pupils reacted well to light and had good accommodation There was bilateral papilledema of approximately 1 D Slight weakness of the upper and lower facial musculature on the left was present

Laboratory Data —Routine studies of the blood and urine showed no abnormal findings with the exception of a mild leukocytosis with a normal differential count The Wassermann reaction was negative Agglutination tests for typhoid paratyphoid A and B, brucellosis, and Proteus vulgaris strain OX 19, were negative Roentgenographic examinations of the skull revealed no abnormalities Electroencephalography demonstrated a small amount of generalized slow-wave activity and a prominent left frontal delta focus It was thought that the patient had a space-occupying lesion, probably in the left frontal lobe

First Operation —On March 16 a ventriculogram was done through biparietal trephine openings by Dr Murl E Faulk The intraventricular pressure was greatly increased Sixty cubic millimeters of clear fluid was removed and replaced with air X ray showed symmetrical dilatation of both lateral ventricles (fig 1) The third ventricle was poorly visualized, but it was possible to detect the outline of the fourth ventricle A bilateral Torkildsen procedure was done The posterior fossa was explored, and polyethylene catheters were passed from each lateral ventricle into the cisterna cerebellomedullaris No tumor was found in the posterior fossa

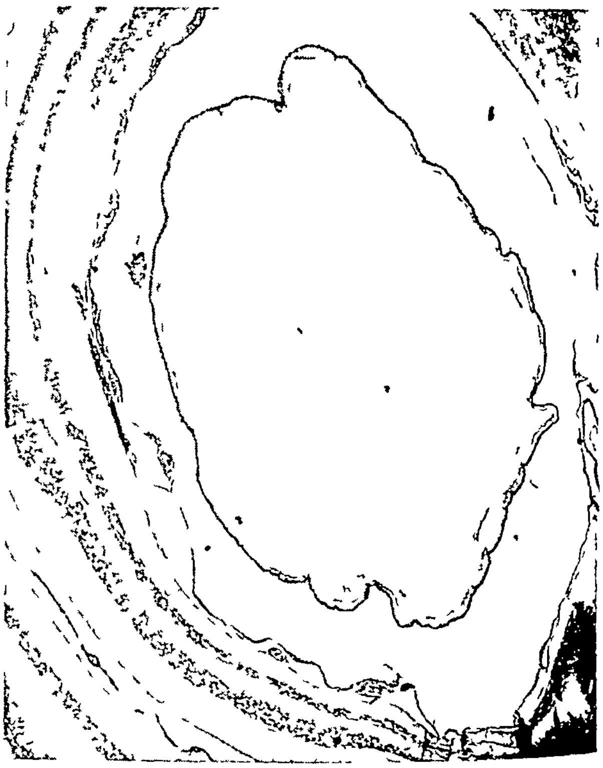

Fig 2 —Photomicrograph of cerebellum showing large cyst containing segment of parasite Note absence of inflammatory reaction in both leptomeninges and compressed cerebellar parenchyma Hematoxylin and eosin stain (× 14)

Subsequent Course —During the immediate postoperative period the patient s condition was critical but within three days it improved remarkably He became alert and was able to walk without difficulty His papilledema disappeared He continued to have a low-grade fever that had been present since surgery The fever did not respond to either chemotherapy or antibiotics

Six weeks after the first operation he became nauseated and vomited, and over a period of several days he became progressively more disoriented.

Second Operation.—In view of the rapid downhill course, he was returned to the operating room, and a pneumoencephalogram was performed on March 22, 1954. Air passed readily through the ventriculocisternal tubes that had been implanted at the first operation. It was impossible to outline the third ventricle in the ventriculograms. The third ventricle was explored through a right-frontal-lobe approach. Aside from symmetrical dilatation of the lateral ventricles and the anterior portion of the third ventricle, no pathological changes were demonstrated.

Subsequent Course.—After operation, the patient developed signs of medullary compression; he died on March 24, 1954, the second postoperative day. The final clinical diagnosis was of a space occupying lesion of the mesencephalon.

Autopsy Findings.—Autopsy was performed 1 hour and 20 minutes post mortem. The body was that of a well developed well nourished male measuring 5 ft., 5 in. (166 cm.) in height and weighing 130 lb. (59 kg.). The operative sites on the scalp corresponded to those described at surgery and showed no evidence of infection. Only the abnormal gross findings will be described.

The combined weight of the lungs was 1,000 Gm. The mucosa of the larynx and trachea was congested. Small emphysematous blebs were noted at the apex of both lungs. Areas of bronchopneumonia were scattered throughout all lobes. There was marked pulmonary congestion and edema. Examination of the gastrointestinal tract revealed no abnormalities except a superficial ulcer measuring 1.5 cm. in diameter on the anterior wall of the descending portion of the duodenum. No parasites were found in the gastrointestinal tract. The other thoracic and abdominal viscera were unremarkable.

Examination of the cranium and contents revealed the arachnoid to be smooth and glistening over both cerebral hemispheres. There was marked thickening of the leptomeninges at the base of the brain, overlying the undersurface of the pons, filling the interpeduncular fossa, and extending forward to the optic chiasm.

The weight of the fixed brain was 1,300 Gm. Over the anterolateral aspect of the right frontal lobe an irregular hemorrhagic defect was present measuring approximately 5 by 2 cm. and corresponding to the operative site. The defect extended into the anterior horn of the lateral ventricle and was surrounded by a narrow zone of hemorrhage. All sulci were narrowed and the gyri were flattened. The basilar artery was obscured by the intense fibrosis of the leptomeninges. The entire spinal cord was not examined, but the small portion removed with the brain was not remarkable.

When the brain stem and cerebellum were removed, it was found that the leptomeninges in the region of the peduncles were 2 to 3 mm. thick and contained numerous small cysts measuring from 1 to 3 mm. in diameter. These cysts contained clear fluid and were lined by thin, shiny gray membranes. Several cysts from 1 to 4 mm. in diameter were present around the periphery of the left cerebral peduncle. The aqueduct was completely occluded by what appeared to be clotted blood.

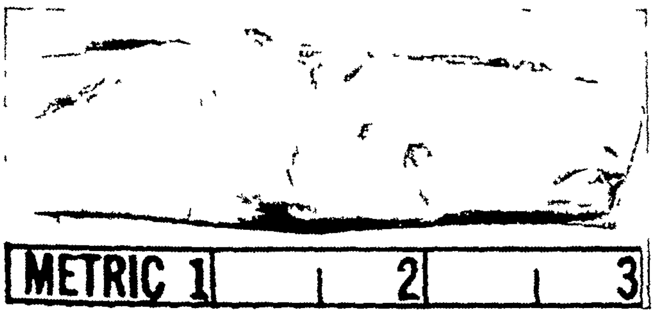

Fig. 3.—Section of thalamus, showing multiple small cysts. Glistening lining membrane is body wall of parasite, which has extended from leptomeninges into the parenchyma.

Multiple transverse sections through the brain stem and cerebellum revealed extensive fibrosis and thickening of the leptomeninges around the inferolateral aspects of the pons. Numerous minute cysts were present within the brain substance adjacent to the aquaeductus cerebri (aqueduct of Sylvius). Some of the cysts within the thickened leptomeninges were seen to extend into the substance of the vermis. A small cyst, approximately 1 cm. in diameter, was found overlying the left superolateral aspect of the roof of the pons. This cyst extended by continuity into the substance of the left cerebellar hemisphere (fig. 2). It was lined by a thin, pale, smooth, and glistening membrane. There was thickening of the leptomeninges around the foramens of Luschka.

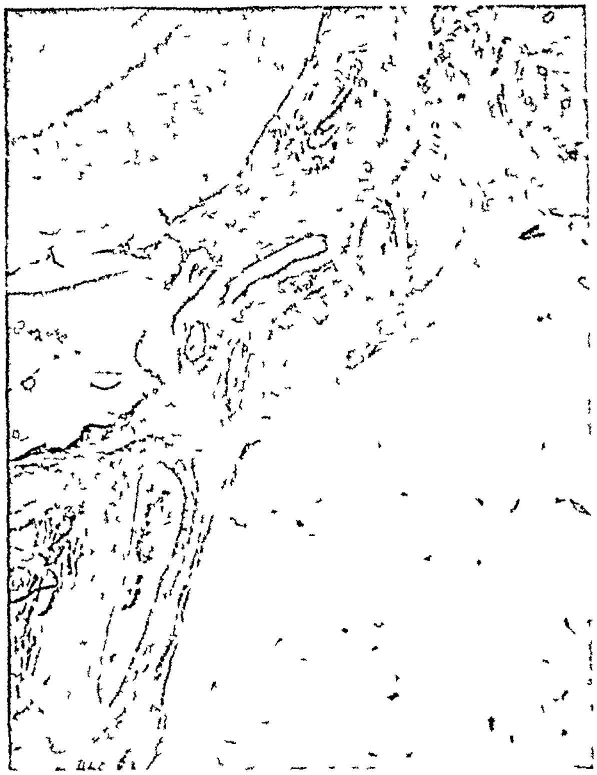

Fig. 4.—Photomicrograph of cerebellum and medulla, showing extensive fibrosis of leptomeninges with caseation and thickening of arterial wall. Hematoxylin and eosin stain (× 14).

Consecutive coronal sections through both cerebral hemispheres revealed the gray matter to have the translucent appearance characteristic of cerebral edema. There were scattered focal areas of hemorrhage in the gray matter of the undersurface of both temporal lobes.

The ventricular system was dilated except for the fourth ventricle, which was normal in size. The ependymal lining was roughened and opaque. Aside from the operative defect, the internal configuration of the cerebral hemispheres was normal. Numerous cysts varying in diameter from 1 to 5 mm., were present in a region extending from the hippocampus (Ammon's horn) medialward and involving a considerable portion of the left thalamus (fig. 3). Some of the cysts had a shiny gray lining membrane whereas in others no distinctive lining membrane was apparent. The anteroposterior extent of the area containing the cysts in the left thalamus measured approximately 1.5 cm. and many of the cysts were in close apposition to the posterior wall of the third ventricle.

Miscroscopic Findings.—All tissues were fixed in 10% formaldehyde solution. Selected sections from the brain were stained with hematoxylin and eosin, periodic acid–Schiff stain, Masson's trichrome stain, Giemsa's stain, and Wilder's stain for reticulum fibers.

Histologically, the heart, aorta, liver, spleen, thyroid, pancreas, pituitary body, adrenal glands, kidneys, and urinary bladder were normal. The lungs showed bronchopneumonia and pulmonary edema. A purulent bronchitis was present, and an organized thrombus was noted in a small pulmonary artery. In the duodenum there was a region of peptic ulceration extending into the muscularis and surrounded by chronic inflammation.

Numerous sections through the cerebellar peduncle showed a fibrous thickening of the leptomeninges, with heavy infiltration of plasma cells and lymphocytes. The small arteries were partially occluded by intimal proliferation There were scattered focal areas of caseation necrosis within the fibrotic leptomeninges (fig 4), about which a dense infiltrate of lymphocytes plasma cells, and macrophages was present Within the leptomeninges and extending into the brain parenchyma there were multiple cysts containing a cross section of a large parasite (fig 5) Further observation revealed that the numerous cysts within the leptomeninges and cerebral parenchyma were lined by portions of the body wall of the parasite Serial sections demonstrated that the body wall of the parasite formed the lining of the cysts in the leptomeninges and then extended by direct continuity to form the lining of adjacent cystic areas in the cerebral parenchyma thus forming the typical polycystic lesion seen in the racemose type of cerebral cysticercosis Grossly these cysts seemed to be separate and distinct Many of the blood vessels in the vicinity of the parasite showed perivascular round-cell infiltration with lymphocytes and plasma cells

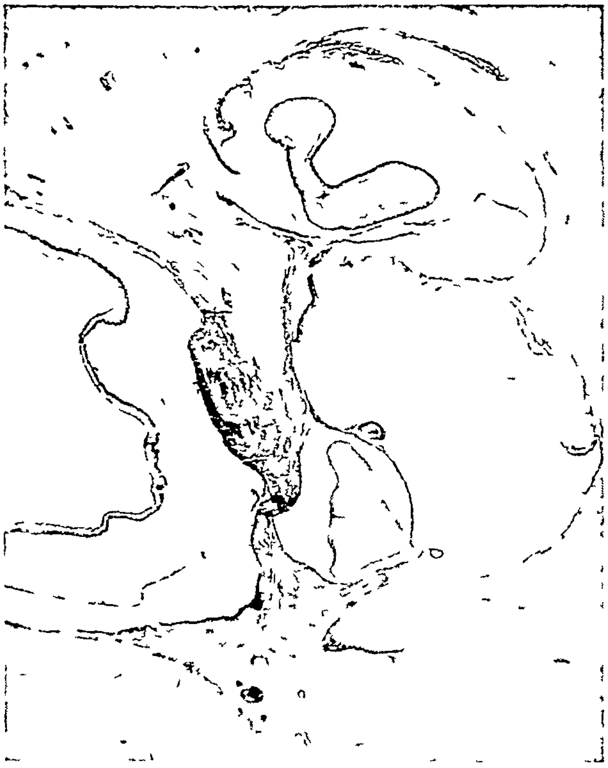

Fig 5 —Photomicrograph of hippocampus and leptomeninges, revealing multiple cysts three of which contain body wall of parasite Hemotoxylin and eosin stain (× 14)

A more detailed histological examination of the structure of the parasite (fig 6) revealed the body wall to consist of three layers (1) an outer compact cuticular layer (2) a thin intermediate cellular layer and (3) an internal reticular layer of varying thickness containing relatively few cells and lining the body cavity of the parasite Usually the meninges immediately adjacent to the parasite contained patches of caseation necrosis and granulomatous inflammation surrounded by dense fibrosis

On microscopic examination of the cystic lesions in the brain, the histological structure of the wall of the parasite was seen to be compatible with that of a Cysticercus No scolices or hooklets were found The typical multicystic lesion involving the brain stem (fig 3) and the microscopic appearance of the parasite (fig 6) also were compatible with a racemose cysticercosis

Similar histological findings were present in the hippocampus and the cerebral peduncle mesencephalon and thalamus About some of the cysts in the cerebellum there was only a slight reaction within the leptomeninges as well as a minimal glial response of the parenchyma Within the cerebral peduncle, intimal proliferation had partially occluded a large artery, and adjacent to this artery there was a small area of caseation necrosis surrounded by lymphocytes plasma cells foreign-body giant cells, macrophages and epithelioid cells

Sections through the cerebral cortex near the optic chiasm showed extreme fibrosis of the leptomeninges and scattered small patches of lymphocytic infiltration Scattered islands of heterotopic glial tissue were enmeshed within the fibrotic leptomeninges A small meningeal artery showed an obliterative endarteritis, and focal areas of encephalomalacia involving the gray and white matter were noted

The aqueduct was obliterated by dense glial tissue in which an area of hemorrhage was present (fig 7) A structure probably representing a degenerated fragment of the parasite was present within the region of reactive gliosis The blood vessels surrounding the obliterated aqueduct showed perivascular infiltration with lymphocytes and plasma cells Immediately underlying the aqueduct, within the leptomeninges, there were several large cysts that were lined by the body wall of the parasite and were surrounded by granulomatous inflammation and fibrosis

Periodic acid–Schiff stains of tissue sections containing the parasite showed the cuticle to be Schiff-negative, the cellular layer contained few Schiff-positive nuclei, while the nuclei of the cells of the reticular layer were Schiff-negative

Comment

The clinical features of this case were principally the typical signs and symptoms encountered with an expanding intracranial lesion, i e , headache and papilledema The neurological signs were not sufficiently definite to permit accurate localization The ataxia and muscle weakness were generalized and mild, without clear-cut cerebellar symptoms of dysmetria and dysdiodochokinesia The facial weakness was so slight as to be questionable, and the pupillary inequality was minimal, with reaction to light and accommodation intact Thus, it would seem in retrospect that the clinical signs should have suggested a lesion involving the brain stem and cerebellum The urinary incontinence was late in onset and may have been nonspecific, since it occurred in association with profound personality changes

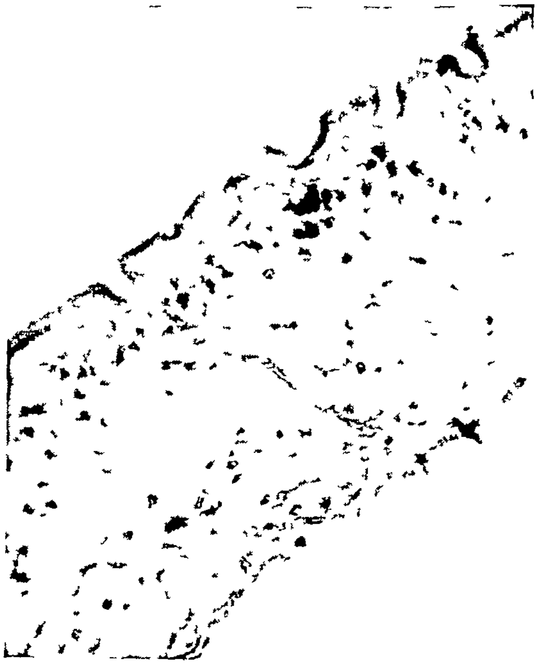

Fig 6 —Higher magnification of parasite shown in figure 5 showing characteristic three layers of body wall, outer cuticular layer, thin intermediate cellular layer, and internal reticular layer Hematoxylin and eosin stain (× 480)

The larval form of cestodes that may invade the brain and produce lesions somewhat similar to those of cysticercosis are Echinococcus granulosus, Multiceps multiceps, and the spargana of several species of Diphyllobothrium [10] Human infestation with the larvae of E granulosus and M multiceps occurs from accidental ingestion of dog feces Human infestation with the sparganum results from consumption of water containing infected Cyclops organisms, from eating uncooked snakes and possibly other animal hosts, or from applying such animal tissue to open wounds Histologically, the findings in this case in no way resemble those in hydatid disease, in which a characteristic laminated membrane forms the cyst wall M multiceps forms in its larval stage not a Cysticercus but a Coenurus Intracranial coenuri grow to considerable size (3 cm or more in diameter) Each Coenurus contains many scolices, which project from the wall into the cyst cavity In cysticercosis, however, each cyst has only one invaginated scolex, in the racemose type, usually no scolex is demonstrable Histologically, the body walls of a Cysticercus and a Coenurus are indistinguishable Morphological differentiation of these two cestode larvae in the brain rests largely upon the size of the parasites and principally upon the presence or absence of multiple scolices Becker and Jacobson [11] have stated that, in all cases, parasitic infestation of the racemose type occurring in the posterior fossa is due to the Coenurus form of M multiceps rather than to cysticerci The multicystic lesion involving the brain stem and the histological appearance of the parasite in this case are similar to those reported by Becker and Jacobson,[12] with the exception that scolices were not found in the present case Although the cestode described in this report could not be classified specifically on morphological grounds, the absence of multiple scolices suggests that the parasite was the larva of T solium

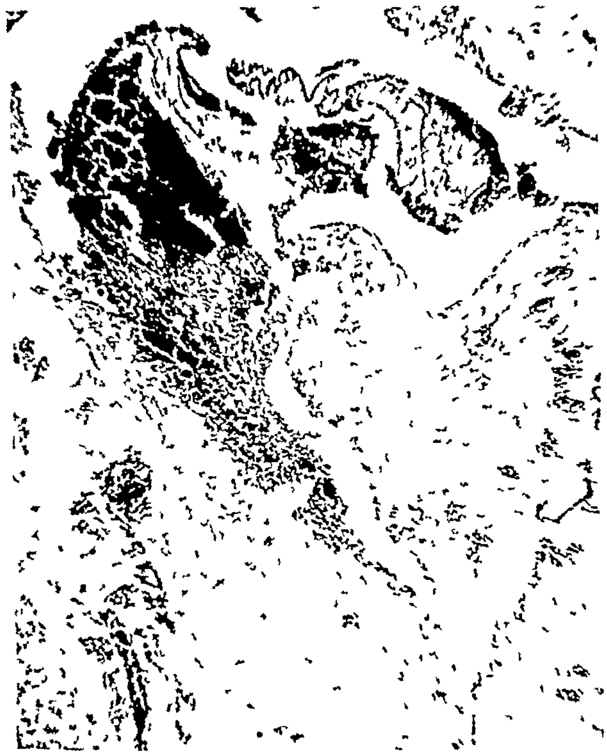

Fig 7—Photomicrograph of aqueduct showing obliteration by glial proliferation in which an area of hemorrhage is present Hematoxylin and eosin stain (approximately × 14)

Summary

A 44-year-old man died as a result of cerebral cysticercosis of the racemose type contracted in the United States No scolices or hooklets were demonstrated microscopically, but the parasite was tentatively identified as the larva of Taenia solium The larval form of this cestode can produce a granulomatous reaction within the leptomeninges sufficiently severe to interfere with the free flow of cerebrospinal fluid In this case, the aqueduct was obstructed and parasitic cysts were present in the adjacent tissues, as well as in the substance of the thalamus, in the cerebellum, and in the gray matter of the hippocampus (Ammon s horn) A chronic proliferative basilar leptomeningitis was present The resulting increased intracranial pressure produced a clinical picture suggestive of a space-occupying lesion Cysticercosis cerebri is rare in the United States and Canada, but it should be included among the less common conditions that can give rise to the signs and symptoms of an expanding intracranial lesion

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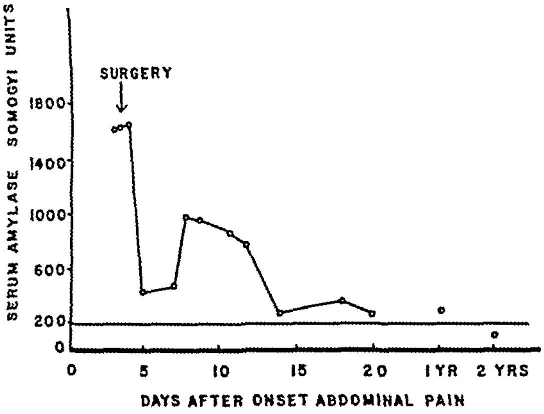
Lewison[7] found "mild but persistent increase in serum amylase activity in a patient treated surgically and found to have a ruptured Graafian follicle" In 37 patients with other gynecologic conditions, however, normal serum amylase values were found

The effect of morphine in occasionally causing increased serum amylase levels, by virtue of its spasmogenic action on the sphincter of Oddi and its contiguous musculature, is well recognized and has been studied intensively by several groups of investigators[8] Although the subject is still somewhat controversial, the view is held by some[9] that, for an opiate to produce an increased serum amylase level, *it is necessary* to have stimulation of the extrinsic secretions of the pancreas by either a meal or administration of secretin, in addition to the excitant action of the opiate on the sphincter of Oddi

The patient described in this report did not eat for at least 36 hours prior to administration of the single dose of morphine given, so there was no alimentary stimulation of pancreatic secretion There was also a substantial rise in the serum amylase level to 980 Somogyi units five days after the operation, without further administration of narcotics Furthermore, no increase in serum amylase level developed after a test injection of 0 01 Gm of morphine sulfate two weeks after the operation The patient had no evidence of impaired renal function, which may cause increased levels of serum amylase due to a decrease in urinary excretion of the enzyme[1c]



Serial serum amylase determinations in a 22 year old woman with a ruptured ectopic pregnancy

Generalized peritonitis may also cause a rise in the serum amylase level, possibly because of secondary inflammation of the pancreas[1c] However, a rise due to absorption of amylase from the digestive ferments released into the peritoneal cavity, such as occurs with a perforated peptic ulcer, is another mechanism which has been suggested to explain this phenomenon[10] The effect of peripancreatic inflammation as well as of absorption of enzymes from the peritoneal cavity on serum amylase levels has been the subject of experiments on dogs,[11] with the latter theory perhaps gaining adherents in recent years In our patient there was only blood contaminating the peritoneal cavity, making the idea of absorption of amylase from this site unimportant It seems possible that peripancreatic inflammation due to the blood may very well have occurred Raffensberger[1c] found mild elevations of serum amylase levels in two patients with stab wounds of the abdomen without perforation of the intestine and in one patient with hemoperitoneum The highest value was, however, only 405 mg per 100 cc

A possible explanation, and a not entirely convincing one, for the substantial elevations in serum amylase level found in the patient described in this report is that secondary inflammation of the pancreas occurred due to blood released from the ruptured tube, with spasm of the sphincter of Oddi caused by administration of morphine playing a contributory role

Summary

High concentrations of serum amylase, compatible with acute pancreatitis were found in a patient with a ruptured ectopic pregnancy There was no evidence of intrinsic pancreatic disease Two years after the ectopic pregnancy, the patient was in good health, with no abdominal pain and a normal serum amylase level

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9 Footnote 8*a* and *b*

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ELEVATED SERUM AMYLASE LEVEL ASSOCIATED WITH RUPTURED ECTOPIC PREGNANCY

Maurice L Kelley Jr, MD, Rochester, N Y

Serum amylase level determinations provide one of the most specific means of making the diagnosis of inflammatory disease of the pancreas However, it has been well established that increased concentrations of serum amylase may be produced, perhaps indirectly, by a variety of other conditions not associated with intrinsic pancreatic pathology The list of such conditions is long and includes perforated peptic ulcer, peritonitis, acute gallbladder disease, choledocholithiasis, biliary dyskinesia, dissecting aneurysm of the aorta, pneumonia, bronchogenic carcinoma, intestinal obstruction, uremia, and mumps (whether or not pancreatitis is present)[1] They may also occur after the injection of morphine or codeine In these conditions, however, the levels of serum amylase are rarely of the same magnitude as those attained in the early phases of acute pancreatitis, and they usually do not exceed 400[1b] to 600[2] Somogyi units

In the case to be described, much higher levels of serum amylase were found in association with a ruptured ectopic pregnancy The protean nature of the clinical picture in this disorder as well as in acute pancreatitis makes this finding of considerable importance to all clinicians dealing with abdominal emergencies

Report of a Case

A 22-year-old Negro woman with a chief complaint of abdominal pain of three days duration, was admitted to the Strong Memorial-Rochester Municipal Hospitals The patient gave a most confusing and unreliable history As well as could be determined, she had been experiencing crampy generalized abdominal pain of slowly increasing severity for three days The only associated symptoms were weakness, nausea, belching, and vomiting She was unable to give satisfactory information regarding her menstrual periods, but thought that menstruation for the present month was four or five days overdue The patient was afebrile and, except for a pulse rate of 130 beats per minute the vital signs were normal She appeared acutely ill and was writhing about in bed complaining of severe abdominal pain The scleras were not icteric The abdomen was rigid and extremely tender to palpation, with signs of peritoneal irritation There was no leukocytosis Urinalysis showed no abnormal findings

The cause of this abdominal emergency was not immediately apparent A serum amylase level determination was made using the Somogyi technique, and showed a marked elevation to 1,600 Somogyi units The normal value for our laboratory rarely exceeds 200 Somogyi units The serum alkaline phosphatase level was 26 Bodansky units (normal, 2 to 4 5) The blood for these determinations was obtained eight hours after a subcutaneous injection of morphine sulfate, 0 01 Gm, and atropine sulfate 0 0003 Gm had been given A serum amylase level determination made 15 hours after the injection showed 1 620 Somogyi units At this time the patient s abdomen was more distended and signs of acute blood loss had developed A posterior colpotomy revealed grossly bloody peritoneal fluid The serum amylase level of this fluid was 1,180 Somogyi units

The patient was taken to the operating room immediately and an exploratory laparotomy was performed by Dr George Trombetta Two thousand cubic centimeters of blood was present in the peritoneal cavity The source of the bleeding was a ruptured ectopic pregnancy on the right A salpingectomy was successfully done The gallbladder appeared normal Palpation of the liver and pancreas revealed no abnormal findings A total of 3 000 cc of blood was administered prior to and during the operative procedure The patient had an uncomplicated postoperative course and made an uneventful recovery No further narcotics were administered

On the day following operation the serum amylase level was still markedly elevated at 1,680 Somogyi units The serum lipase level was 0 24 cc (normal 0 2 to 1 5) and the serum alkaline phosphatase level had fallen to 4 Bodansky units On the second and fourth postoperative days the serum amylase level decreased to 414 and 460 Somogyi units, respectively but it rose to 980 on the fifth postoperative day (see figure) After this there was a progressive decline to almost normal levels

The patient denied having had any previous bouts of abdominal pain or other symptoms suggesting pancreatitis No calcifications were seen in a plain roentgenogram of the abdomen An oral cholecystogram showed good concentration of dye and was interpreted as normal A glucose tolerance test with 100 Gm given by mouth was normal A mumps complement-fixation test showed no significant titer, and there was no increase in titer on a return visit of the patient two months after the hospital admission No excess fat or starch in the stool could be demonstrated

Two weeks after operation the serum amylase level was 360 Somogyi units There was no rise in level after a subcutaneous injection of morphine sulfate, 0 01 Gm, was given as a test The patient was completely asymptomatic on discharge 21 days after the operation

One year later she was again admitted to the hospital for marsupialization of a Bartholin gland cyst There were no gastrointestinal complaints The serum amylase level was 300 Somogyi units Two years later the patient was seen in the outpatient department for a rectal complaint She denied having abdominal pain or other symptoms of pancreatitis, and stated that she felt fine' Physical examination was unremarkable The serum amylase level was 110 Somogyi units

Comment

The frequent difficulty encountered in making the diagnosis of ectopic pregnancy is well known It has been said[3] that the factor most typical of these patients is their atypical clinical picture When a clear history cannot be obtained, the problem is even greater Among the abdominal emergencies which may be mimicked are acute pancreatitis and the hemolytic crisis of sickle-cell anemia,[4] both of which were considered in the patient described in this report before the diagnosis became obvious after posterior colpotomy High levels of serum amylase compatible with acute pancreatitis such as were observed in this patient apparently have not been described previously in cases of ectopic pregnancy

Serum amylase is derived primarily from the pancreas and to a lesser degree from the liver, salivary glands, and possibly other glands[5] An increase in circulating enzyme is thought to be due to back pressure within the pancreatic ductal system, with retrograde passage of the enzyme through the capillaries into the blood stream[6] The mechanism responsible for the high levels of serum amylase in this patient, who had no demonstrable evidence of intrinsic pancreatic disease, is not clear

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Bixby Fellow in Medicine and Instructor in Medicine, the University of Rochester School of Medicine and Dentistry

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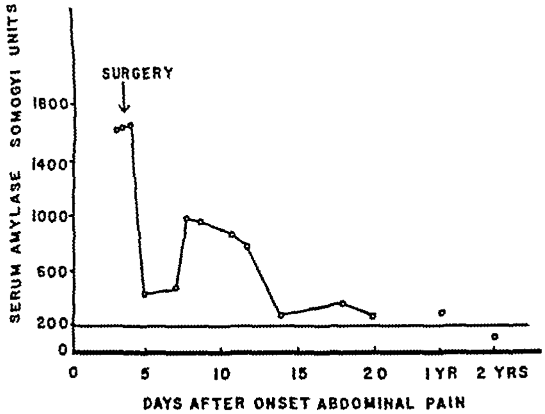

Serial serum amylase determinations in a 22-year-old woman with a ruptured ectopic pregnancy

Generalized peritonitis may also cause a rise in the serum amylase level, possibly because of secondary inflammation of the pancreas[1c] However, a rise due to absorption of amylase from the digestive ferments released into the pertoneal cavity, such as occurs with a perforated peptic ulcer, is another mechanism which has been suggested to explain this phenomenon[10] The effect of peripancreatic inflammation as well as of absorption of enzymes from the peritoneal cavity on serum amylase levels has been the subject of experiments on dogs,[11] with the latter theory perhaps gaining adherents in recent years In our patient there was only blood contaminating the peritoneal cavity, making the idea of absorption of amylase from this site unimportant It seems possible that peripancreatic inflammation due to the blood may very well have occurred Raffensberger[1c] found mild elevations of serum amylase levels in two patients with stab wounds of the abdomen without perforation of the intestine and in one patient with hemoperitoneum The highest value was, however, only 405 mg per 100 cc

A possible explanation, and a not entirely convincing one, for the substantial elevations in serum amylase level found in the patient described in this report is that secondary inflammation of the pancreas occurred due to blood released from the ruptured tube, with spasm of the sphincter of Oddi caused by administration of morphine playing a contributory role

Summary

High concentrations of serum amylase, compatible with acute pancratitis, were found in a patient with a ruptured ectopic pregnancy There was no evidence of intrinsic pancreatic disease Two years after the ectopic pregnancy, the patient was in good health, with no abdominal pain and a normal serum amylase level

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COUNCIL ON FOODS AND NUTRITION

Report to the Council

The following paper was presented at the symposium, "The Relation of Proteins and Amino Acids to Human Nutrition," in Los Angeles, May 21, 1956. This symposium was sponsored by the Council on Foods and Nutrition, with the cooperation of the Los Angeles County Medical Society and the School of Medicine, University of California at Los Angeles. This report is the third of the series, the others of which appeared in THE JOURNAL, *May 11 and May 18. After publication of the sixth and final report, this series will be available in monograph form.*

PHILIP L. WHITE, Sc.D., *Secretary*

AMINO ACID AND PROTEIN REQUIREMENTS OF INFANTS

Edward L. Pratt, M.D., Dallas, Texas

Man has been practicing nutrition since his appearance on this earth, yet in spite of this long interest in and association with foods, our present knowledge of human nutrition is limited. A great deal of prejudice, faddism, and crooked, illogical thinking clouds the whole field of nutrition. This state of uncertainty is in large measure unavoidable; it results from the complexities of the evaluation of nutrition, particularly in humans.

Nutrition plays an important role in pediatrics. Here physicians have a real opportunity to influence the eating habits and, therefore, the health of the nation. The cardinal principle of pediatric nutritional education is to make the eating of a wide variety of natural foodstuffs a pleasurable experience for the child and also for his mother. It is largely our ignorance of every essential food factor and our inability to specify adequate amounts of the known ones that make this principle a prerequisite for adequate nutrition at the present time.

Problems in Nutritional Experimentation

In order to appreciate the difficulties inherent in nutritional experimentation, let us briefly consider some of the steps that are essential in the evaluation of medical evidence.[1] A clear statement of the problem is necessary, but in nutrition is it possible to agree on the definition of such terms as "minimal requirement," "optimal allowance," or "optimal nutrition"?

The samples studied must be truly comparable in all relevant features. We know that the previous nutritional history and the initial nutritional state of the subject do affect the results of feeding experiments. The control of such factors in human subjects is understandably difficult. The allocation of subjects to different diets by random selection should be practiced in nutritional experiments.

In the "ideal" experiment a single variable can be manipulated at a time, but in nutritional experiments this is particularly difficult to achieve. Alterations in the composition of a diet with respect to amounts and types of carbohydrates, fats, minerals, and vitamins are known to influence the results. Uncontrolled intakes of food are frequently influenced by psychic factors that must be controlled in feeding experiments, especially in children.

In any experiment there should be a clear-cut method of assessment. In nutritional experiments what criteria are we to choose in assessing the results? Concerning protein nutrition, the limitations of the nitrogen balance method are well known. Gain in weight, since it may be due to the accumulation of fat, water, or protoplasm, may not serve as an adequate means of assessing the value of varying protein intakes. The chemical analysis of the whole body composition is not a feasible method of assessment when applied to humans. Increments of linear growth are useful if accurate measurements are taken and if other factors affecting growth can be controlled.

Before proposing a cause-and-effect relationship between the manipulated variable and the results observed, the results should be compared with the role that may have been played by chance or associated variables. Thus we see that even in a simple nutritional experiment the "experimental design" must be very carefully thought out. There is need for consistent definitions, uniform standards of assessment, and restricted interpretations of the data throughout much of the field of nutrition.

In the United States the problem of protein nutrition in infancy is different from that found in many parts of the world. Even today, the World Health Organization and the Food and Agriculture Organization consider the problem of protein nutrition first in order of urgency, especially in the construction of diets suitable for infants and children in the postweaning period. The interpretation of protein needs in terms of constituent amino acids is basic for an understanding of protein nutrition in health and for intelligent correction in defective dietary situations.

The intake of protein, as of most substances, is perhaps best viewed in the light of minimal requirements and maximal tolerated amounts. The upper limit of protein intake is determined largely by the size of the renal water requirement imposed by the high solute load that results from a high protein intake.[2] The high

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er the protein intake the larger the renal water requirement at any given urinary concentration In general, in the United States there is no need to know the minimal requirement of protein or amino acids for routine infant feeding, however, such knowledge is basic in planning food programs in areas with scanty supplies of dietary protein or in clinical situations in which the capacity to handle food is limited by illness or other conditions In these circumstances it is desirable to eliminate nonessentials in order to make room for the essential quantities of other substances This is particularly true when nourishment is given parenterally In addition, the knowledge of the amino acid requirements of healthy infants is necessary before a study can be made of these requirements as altered by disease Finally, because of current propaganda for supplementing diets with individual amino acids, the amino acid requirements for infants should be considered

Amino Acid Requirements in Infancy

A number of approaches to the determination of the amino acid requirements of infants are available One may use natural proteins that, by anaylsis, have been shown to be deficient in some particular amino acid Nature, however, has been singularly unobliging in providing a variety of such proteins In addition, the use of these incomplete natural proteins may introduce other amino acid imbalances in the diet One may use proteins in which individual amino acids have been degraded by chemical or other means The disadvantage of this method is that the nature and possible effects of the degraded fragments are unknown Apparently reasonable requirements for tryptophan, isoleucine, and the sulfur amino acids have been obtained by Albanese and co workers [3] by these methods

A synthetic diet in which the protein is replaced by an amino acid mixture may be used The advantage of these mixtures is that the ingredients are accurately known, although their absorption rates may be different from those of amino acids liberated from proteins In some studies the DL forms of the amino acids have been used, leading to uncertainties about the utilization of the D forms or their possible ill-effects on metabolism, in some diets the nonessential amino acids have been omitted The imposition of the synthesis of nonessential amino acids from the essential amino acids may or may not represent physiological economy

These difficulties and sources of error can be avoided by giving a diet in which the protein moiety is replaced by a mixture of pure amino acids, both essential and nonessential, all in the form of the natural optical isomers Such a synthetic diet has been used,[4] and its composition is shown in table 1 The amino acids were present in the diet in the same proportions as those found in human milk The data for the amino acid composition of human milk were taken from the tables of Macy and from the analyses of two samples of pooled mature human milk analyzed by column chromatography [5] This synthetic diet maintained normal growth in rapidly growing premature infants over periods of several days

In these experiments, infants, believed by all usual criteria to be in good health, were fed the full synthetic diet An individual amino acid then was generally reduced in amount or removed completely from the diet, and gradual increases in the quantity of the amino acid under consideration were made The nitrogen content of the diet was kept constant by adding equivalent amounts of glycine The patients were studied in the metabolism ward under the close supervision of clinicians and nurses specializing in metabolism The criteria of adequacy or inadequacy of a given amount of an individual essential amino acid were (1) alteration in the rate of weight gain, (2) change in the level of nitrogen balance, (3) analysis of the serum proteins, and (4) analysis of 24-hour specimens of urine for nitrogen and for amino acids by column chromatography

Threonine —The threonine requirements of eight patients ranging in age from 2 weeks to 4½ months were studied The requirements of two patients seemed to be met with 50 mg per kilogram of body weight per day, but the requirement of one patient appeared to be slightly above 60 mg of threonine per kilogram per day It was felt that the usual requirement for threonine could be regarded as roughly 60 mg per kilogram of body weight per day [4a]

TABLE 1 —*Composition of Experimental Diet*

	Gm	% of Total Calories
L Amino acid mixture	100	12
L Alanine	2 07	
L Arginine	4 69	
L Aspartic acid	8 78	
L Cystine	2 14	
L Glutamic acid	17 56	
L Glycine	2 06	
L Histidine	1 76	
L Isoleucine	6 11	
L Leucine	11 76	
L Lysine hydrochloride	7 10	
L Methionine	1 68	
L Phenylalanine	4 89	
L Proline	6 11	
L Serine	5 34	
L Threonine	4 58	
L Tyrosine	4 58	
L Tryptophan	1 68	
L Valine	6 64	
Hydrogenated vegetable fat	160	43
Dextrimaltose	375	45
Mineral mixture	22 3	
Vitamin B mixture	10 0 ml /day	
Vitamins A, C and D*	0 6 ml /day	

* Supplied as Tri Vi Sol by Mead Johnson & Company

Phenylalanine —In a similar manner, the phenylalanine requirements of six patients ranging in age from 1 week to 9 months were studied By the criteria used, it was found that approximately 90 mg per kilogram of body weight per day was the minimal phenylalanine requirement for these infants [4b]

Lysine —More recently Snyderman and associates [4c] have extended these observations to the essential amino acid lysine In a study of six infants they found the minimal requirement to be approximately 90 mg per kilogram of body weight per day

Comment —The values obtained by the method outlined seem reasonable on the basis of the consistency of changes in weight gain and nitrogen balance of all subjects The values for infants seem reasonable in the light of those obtained by Rose [6] for men and Leverton [7] and Jones [8] for women When calculations are made from the rather sketchy data available for infants fed measured amounts of human milk, the amounts of threonine, phenylalanine, and lysine calculated to have been ingested in human milk are more than the amounts required in the preceding experiments.

Recently Snyderman and co-workers[9] performed studies in which the quantity of protein, derived from cow's milk, was reduced in the diets of infants. The calories were replaced by carbohydrate and fat until a limit was found that would reduce normal weight gain. It was noted that protein from cow's milk could be reduced to as low as 4% of the total calories if an additional amount of nitrogen were provided by glycine or urea. On the lowest protein intakes with a glycine or urea supplement, the lysine, phenylalanine, and threonine intakes were of the same order of magnitude as the minima in the previously mentioned amino acid requirement studies.

Obviously, these experiments under quite artificial circumstances have many limitations. The requirements determined for the three amino acids probably would not be adequate if different criteria of adequacy were employed. They might well be altered if there were changes in the proportions of the amino acids, fats, carbohydrates, or vitamins employed in the diet, as well as any change in activity, rate of growth, or state of health of the patients. In addition, the small number of individuals studied does not allow for prediction of individual variations. Table 2 depicts the preliminary, tentative values for the amino acid requirements of infants as studied so far.

TABLE 2.—*Tentative Minimal Requirements for Essential Amino Acids During Infancy*

Amino Acid	Mg./Kg. of Body Weight/Day
Tryptophan	80
Isoleucine	90
Sulfur containing amino acids	85
Threonine	60
Phenylalanine	90
Lysine	90

Supplementation of Diets with Single Amino Acids

One should be wary of amino acid supplementation of diets without considerable thought and investigation of both the need for such supplementation and, particularly, the safety of such a procedure. In the adults studied, a deficiency of any one of the essential amino acids led to symptoms of anorexia, fatigue, and increased nervous irritability. In the infants, failure of weight gain was regularly observed. These common symptoms, which are in no way specific for amino acid deficiencies, occur in people with many other types of disability. Since we all occasionally lose our appetite and suffer from fatigue or nervous irritability, and since an unsatisfactory rate of weight gain is a comon pediatric complaint, one can see that there could be a tendency to exploit these symptoms and to begin adding amino acids to practically all foods.

This already is being done with lysine. The theoretical basis for this need is the assumption of a high value for the minimal requirement of lysine in infants.[10] This was determined by a method of questionable validity and resulted in the estimation of a minimal requirement of 170 mg. of lysine per kilogram of body weight per day, which is greater than the amount of [illegible] usually ingested daily in human milk and in some of the satisfactory low-protein infant foods made from cow's milk. It is much greater than that in the 4% protein diets supplemented with glycine or urea.[9] The minimal lysine requirement determined by Snyderman and others[4c] is about one-half of this value. One investigator has postulated that the total amino acid requirement of an animal of any age or species is determined by the proportions of the essential amino acids contained in the tissues being formed or metabolized. There is no evidence that the amino acid composition of the tissues being formed or metabolized in infancy differs remarkably from that in adults. The experimental evidence suggesting the need for lysine supplementation is based on a study of 15 infants and children with unspecified types of illness. Their changes in weight and in serum protein and hemoglobin concentrations were variable. This might be expected in an uncontrolled heterogeneous group. Hence, the results in the only published study of the rectification of growth failure by lysine supplementation are difficult to assess.[11]

Deleterious effects resulting from the addition of an excess of an individual amino acid have been reported. Amino acid imbalance is readily produced in tissue cultures, in animal experiments,[12] and in human beings. Therefore, it would seem highly undesirable to use such supplementation of proteins until more impressive evidence of their value and their safety has been produced.

Summary

Our knowledge of protein nutrition in humans is scanty and uncertain, largely because of the inherent difficulties in the evaluation of human nutrition. Therefore, those who must interpret nutritional experiments and give advice about diets to patients must exercise considerable caution. The present lack of knowledge makes it mandatory that pediatric patients be taught to enjoy eating a wide variety of natural foodstuffs. A plea is made for valid evidence before the procedure of supplementing proteins in the diet with individual amino acids is accepted.

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FATS IN THE DIET

Wendell H Griffith, Ph D, Los Angeles

Report to the Council

The Council has authorized publication of the following report

Philip L White, Sc D, *Secretary*

The significant increase in life expectancy in the United States and the growing percentage of the total population in the over-65 age group have intensified interest in the nutritional problems of the aged Although it is doubtful if fundamental distinctions exist between nutritional requirements in middle and in advanced age, the distressing incidence of arteriosclerosis, coronary thrombosis, and cerebral vascular accidents has nevertheless raised questions about the possible relation of these diseases to the dietary habits of older adults and to the composition of common foods

Lipids are frequently designated as dietary culprits, and, in some circles, the terms 'fat' and "cholesterol' have become synonymous with atherogenesis and diaster How much is an optimal quantity of fat, and what should be its chemical nature? The fact that precise answers cannot be given to these fundamental questions emphasizes the urgent need for the reexamination of the role of lipids in nutrition

There can be no doubt about the physiological importance of fats The neutral fats are triglycerides of common fatty acids The high caloric density of fat and its insolubility in water make it superior to both glycogen and protein for the storage of energy, in both animals and plants Moreover, the deposition of fat in animals as adipose tissue insulates the body against rapid changes in environmental temperature and physically cushions organs and the body as a whole against external forces

That fat is not a foreign material in the body is indicated by the elaborate enzymatic and hormonal mechanisms that control its chemical transformations The interrelationship of these mechanisms with those concerned with the metabolism of sugars and amino acids suggests that the utilization of fat as a fuel is the usual, not the unusual, biochemical event Actually, much evidence exists to support the view that the intermediate products of fatty acid metabolism serve as the primary fuel of resting muscle It is significant also that fat is synthesized by mammary tissue and that it is quantitatively the most important source of energy in milk

Fats are widely distributed among common foodstuffs They add acceptability to meals, certain ones provide the essential fat-soluble vitamins, and their digestion and absorption make possible the intestinal absorption of these same vitamins

Storage fat may originate directly from food fat or indirectly from the conversion of dietary carbohydrate to fat During any 24-hour period starch sucrose, lactose, and glucose are assimilated through the digestive tract and are either burned or become, temporarily, blood glucose, liver or muscle glycogen, or tissue fat In a normally nourished individual a portion of the day's intake of carbohydrate is converted to fat If the individual is in caloric balance, this fat is burned between meals and during the night, and none is left in the tissues If the individual's caloric intake is excessive, his energy needs are satisfied without using all of the fat, and adipose tissues increase in amount

Fat formed from food carbohydrates in animals is largely a mixture of the triglycerides of palmitic stearic, and oleic acids These fatty acids predominate in butter fat, the fat of milk, and in the fat obtained from adipose tissue of farm animals Palmitic and stearic acids are saturated, whereas oleic acid is unsaturated, having one double bond in its carbon chain Tissue fats of animals may contain variable amounts of the triglyceride of linoleic acid if the fat trilinolein is present in the diet Linoleic acid, which is doubly unsaturated, either is not synthesized or is only slowly synthesized in animal tissues

In contrast to palmitic, stearic, and oleic acids, which, although useful, are dispensable in the diet, linoleic acid may be an essential nutrient It is an integral part of important tissue constituents such as lecithins and esters of cholesterol From a practical viewpoint, it is the dietary precursor of arachidonic acid, the polyunsaturated fatty acid that is indispensable to many animal species Although evidence for the essential role of linoleic and arachidonic acids in

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Chairman Department of Physiological Chemistry, University of California Medical Center human diets needs further corroboration, prudence favors their provisional inclusion in the group of nutrients required by man

The problem of the nutritive value of the triglycerides of common fatty acids is complicated by the fact that man uses appreciable quantities of triglycerides of other and unnatural fatty acids in his diet This happens because of the commercial hardening of plant oils by the process of hydrogenation This procedure not only forms saturated bonds from unsaturated bonds but also may transform the natural "cis' isomers to unnatural "trans" isomers The latter have higher melting points but remain unsaturated Other unnatural isomers may result from a shifting of the double bonds along the carbon chain At the present time it is virtually impossible to describe chemically some of the commercial hydrogenated plant oils because of their complexity

Some plant oils such as corn, cottonseed, safflower, soybean, and peanut oils are rich sources of trilinolein As noted before, hydrogenation replaces a significant part of the linoleic acid with stearic acid and with unnatural, unsaturated fatty acids Arachidonic acid occurs in small amounts in some animal fats Olive oil, although unsaturated, is a poor source of linoleic acid, coconut oil, a plant fat, is saturated Chicken fat is an unusual animal fat because of its relatively large content of linoleic acid, fish oils are highly unsaturated and are characterized by other polyunsaturated fats in addition to some trilinolein These illustrations demonstrate the need of a more definitive terminology in describing the fatty acids in natural and in processed fats than is afforded by the general terms, animal or plant, hard or soft, saturated or unsaturated, and low iodine or high iodine number

Considerable evidence exists to show that, under certain circumstances, sources of linoleic acid may lower elevated serum cholesterol levels in man The evidence favors the concept that essential unsaturated fatty acids are required for the normal transport of cholesterol as lipoprotein and, possibly, phospholipid complexes Clarification of the circumstances under which hypercholesteremia can be prevented, however, remains to be delineated Valid experimentation has not yet determined the relative influence on serum cholesterol of surplus dietary calories, of an excess of the total dietary fat, of abnormal ratios of linoleic acid to other fatty acids in the diet, or of numerous other nutritive factors that may influence adversely the physical and chemical characteristics of lipids in the blood and in the walls of the vascular system Until a clear-cut solution of the problem of the prevention of arteriosclerosis and of its sequelae is forthcoming, it seems wise to assume that a faulty diet may be one of the causative agents Whether or not dietary fat is, in some fashion, the culprit remains to be proved In the meantime, one may recommend the dietary control required to attain and maintain optimum body weight and the choosing of a varied diet containing adequate amounts of those foods, including fats, shown by experience and by experiment to have special nutritive value

COMMITTEE ON COSMETICS

Report to the Committee

The following paper was presented at the symposium, The Rational Use of Cosmetics in Medical Practice, in Chicago, June 13, 1956 This symposium was sponsored by the Committee on Cosmetics, in cooperation with the Section on Dermatology, at the 105th Annual Meeting of the American Medical Association This is the third in a series of papers, the others of which appeared in The Journal, *March 2, page 740, and March 16, page 943*

Veronica Lucey Conley, *Secretary*

ACTION OF EMOLLIENT CREAMS AND THEIR ADDITIVES

I H Blank, Ph D, Boston

Some confusion exists among physicians, pharmacologists, and cosmetic chemists as to just what constitutes an emollient For the purpose of this discussion, an emollient is defined as any externally applied material that tends to prevent or counteract the symptoms and signs of dryness of the skin Very mild dryness may be apparent only as superficial scaling of the skin, but severe dryness may be accompanied by considerable scaling, fissuring, inflammation, pain, or itching If emollients and dryness are so defined, it becomes apparent at once that the emollient creams and lotions produced by the cosmetic manufacturer and the simple emollient ointments and lotions prescribed by the physician have much in common Their functions are the same The cosmetic manufacturer and the physician probably can learn from each other

The majority of emollients, cosmetic or pharmaceutical, are mixtures of an oil and water In addition, an emulsifying agent is used to keep the oil and water well mixed, and a perfume may be added Any one or more of a large variety of oils may be used If the oil has a low melting point, the emollient will feel greasy

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From the Dermatological Research Laboratories, Department of Dermatology, Harvard Medical School, Massachusetts General Hospital on the skin, if it has a high melting point, the residual oily film will not feel greasy Because it does not feel greasy, and because, as it is rubbed onto the surface, its color probably changes from white to colorless, it seems to "vanish " The external, continuous phase of the emollient may be either oil or water, that is, the emollient may be either a water-in-oil or an oil-in-water emulsion, depending on the type of emulsifying agent used When the continuous phase is oil, water is the dispersed phase and vice versa

After these emollients are applied to the cutaneous surface, some of the water may be taken up by the stratum corneum, but most of it evaporates into the air The nonvolatile oil of the emollient remains on the skin It has been assumed, therefore, that the residual oily layer serves as a "lubricant," since most of the emollients have the physical characteristics of lubricants In order to act as a "lubricant," the oil should locate between the lamellas of the stratum corneum, thus allowing the lamellas to slip over one another and permitting the skin to flex without breaking the stratum corneum With this in mind, attempts have been made to find oily substances that would penetrate the stratum corneum Lanolin and lanolin mixtures have been said to penetrate the skin better than do other oils, particularly petrolatum

Indeed, lubrication might be one of the mechanisms by which emollients act, but it does not seem to be the major mechanism involved It can be easily shown that neither an externally applied oil nor the natural oils can keep the stratum corneum flexible without the aid of water[1] If the cornified epithelium (a piece of callus or the top of a sunburn blister) is removed from the skin and allowed to lose its water but none of its natural oils, it becomes inflexible and brittle Immersion of this dry, brittle cornified epithelium in various anhydrous oils for long periods of time, even two or three years, will not make the cornified epithelium flexible again If the brittle callus is immersed in water, however, it becomes quite flexible in a very short time Currently, water is the only known plasticizer for keratinized tissue

The application of a film of oil to the cutaneous surface relieves the symptoms of dryness, however This film functions in two ways First, the oil replaces a roughened, scaly surface with a smooth film, and small spicules of cornified epithelium, which extend above the surface and produce roughness, are "cemented down" Thus, the cutaneous surface seems smoother Second, and more important perhaps, if the oily films are occlusive, they will retard the evaporation of water from the cutaneous surface and help keep the stratum corneum hydrated and flexible

The natural lipid film on the surface is not an occlusive barrier, and the major barrier in the skin is below the stratum corneum Winsor and Burch[2] showed that the natural lipids do not prevent water loss to the environment, and Rothman[3] stated that it is not difficult to get water into the stratum corneum from the environment through whatever lipid film there is on the surface In 1924, Rein[4] pointed out that the stratum lucidum and stratum granulosum are responsible for the impermeability of the skin to electrolytes Later Rothman[5] stated that, at this same anatomic position in the skin, the *Übergangsschichten* act as the barrier against the penetration of water molecules because the proteins in these layers are buffered at a pH corresponding to their isoelectric points and therefore take up a minimum quantity of water Szakall[6] showed that it is necessary to strip intact human skin six times with adhesive tape before the barrier is broken sufficiently to allow water to escape rapidly enough to produce a moist surface Quantitative measurements of the rate of water loss through pieces of excised human skin, which have been stripped various numbers of times, have been correlated with histological sections of the stripped skin and support the hypothesis that the major barrier against diffusion of water molecules is near the base of the cornified epithelium[7]

Thus, since the surface film of natural lipids is not an adequate barrier to prevent loss of water from the stratum corneum and because there is a barrier between the cornified epithelium and the underlying moist tissues, the cornified epithelium loses water to the environment more rapidly than it receives water from the underlying tissues It tends to dry out, but fortunately it is a hygroscopic material and does not dry out completely in atmospheres of normal or high relative humidity, however, when the relative humidity is low, as during the winter months, the stratum corneum may dry out, become brittle, and break or scale when flexed unless it is adequately protected by a film of occlusive oil The action of the simple emollients, therefore, is primarily a surface phenomenon, and possibly the importance of the penetration of the oil into the skin has been overemphasized An effective emollient must be so constituted that it will help the stratum corneum maintain an adequate water content

It is at once apparent that the thicker the stratum corneum, the less flexible it will be if and when it becomes dehydrated Not only does the water content of the stratum corneum influence the condition of the skin, but the thickness of the cornified epithelium also plays a role When the stratum corneum becomes thicker, the symptoms of dryness increase Physical stimuli such as friction and exposure to ultraviolet radiation, chemical stimuli, and certain pathological states thicken the stratum corneum On frequent exposure to warm solutions of a soap or detergent, the skin receives both physical and chemical stimuli Such a process might evoke thickening If thickening is abnormal because of an added external stimulus, it may be corrected just by removing this stimulus, but, if it is abnormal because of some diseased state and abnormal keratinization, correction may be much more difficult

Vitamin A

Some evidence suggests that vitamin A alters keratinization Fell and Mellanby[8] and Weiss and James[9] have shown that keratinization of epidermal cells from the chick embryo growing in tissue culture can be completely suppressed by the use of vitamin A Flesch[10] has shown that ethers and esters of vitamin A inactivate sulfhydryl groups of mouse liver homogenates and the sulfhydryl enzyme dehydrogenase and cause hair loss when externally applied to mice Other investigators[11] have stated that large oral doses of vitamin A correct the abnormal keratinization in such diseases as keratosis follicularis, keratosis pilaris, and ichthyosis

Reasoning that this effect is exerted directly on the end-organ and that therefore systemic administration would not be necessary, some physicians have applied vitamin A topically, and cosmetic manufacturers have used this vitamin occasionally in emollient creams

There is fairly good evidence[12] to prove that vitamin A can penetrate normal, intact animal skin, and Mandelbaum and Schlesinger[13] indicate a systemic effect after external application in humans It is probable that it penetrates intact human skin slowly and that only a small portion of the amount applied reaches the granular and Malpighian layers of the epidermis where any faulty keratinization might be corrected There is still little evidence, however,[14] to show that abnormal keratinization in skin diseases is altered by the external application of a vitamin A ointment any more than it would be altered by the application of the vehicle alone Very little evidence has been found to show that the use of cosmetics containing vitamin A is any more beneficial for controlling symptoms of dryness than are simple emollient creams not containing any vitamin A In support of this statement, a representative of the cosmetic industry, in 1954, commented on a paper by Conley[15] and said, "I agree with our able contemporary that there is some boloney being handed out in publicity on the need for and value of vitamins in skin creams

"Whether the vitamins help the skin or not is something that clinical trials can establish easily enough So it is hoped the industry has done the work, or if not, it should get started Methinks we have loads to learn about the skin'[16]

Estrogens

In discussing estrogens, perhaps it is not justifiable to ask whether they function only by increasing the emollient action of a cream The estrogens are said to cause hydration of the skin, but this refers to hydration of the dermis and not of the stratum corneum They are supposed to delay or reverse some of the changes that occur in the skin during normal aging, only one of which is dryness During aging, there are changes in both the epidermis and dermis The epidermis and stratum corneum do not become thicker with age, if they change at all, they become thinner There may be a decrease in the activity of the sebaceous glands, and less sebum may be produced As has already been indicated, however, the sebum is probably not the major factor in skin dryness Some atrophy occurs in the skin of elderly people, the entire skin feels thinner, and it is less elastic and less resilient Many elderly people describe their skin as "dry" The question arises as to whether these changes are reversible and whether they can be prevented From what is known of the action of simple emollients, it would appear that they could not prevent or reverse such changes in the aging skin

It is easy to understand why estrogens have been added to simple emollients in an attempt to control aging of the skin in women, for these changes in the skin occur at a time when the normal production of estrogen decreases Other physiological changes also occur at menopause, and it is asked whether simple replacement of estrogen will control the cutaneous changes, and, if so, whether this replacement can be accomplished by topical application of estrogen

It seems reasonably well established that estrogens can penetrate normal human skin[17] Because this is true, undesirable systemic effects from the topical application of estrogen creams might occur Scattered reports in the literature, such as that of Goldberg and Harris,[18] seem to support this point of view However, there is a dearth of evidence concerning the absolute rate of penetration of estrogen through normal and abnormal skin from various concentrations of estrogen in different types of vehicles More evidence is needed Most estrogen creams currently available do not contain more than 10,000 I U of estrogen per ounce When such creams are used according to directions, they appear to be free of any abnormal systemic effects[19] There is probably a factor of safety in a cream of this concentration Peck, Klarmann, and Spoor[20] state that concentrations of estrogens in excess of 50,000 I U per ounce may produce undesirable systemic effects Early fears of carcinogenic action of these cosmetics appear to be unwarranted[21]

When estrogens in suitable vehicles are applied to the surface of animal skins, the majority of reports indicate that there are some local effects on the skin as well as possible effects on distant organs[23] The response of human skin, however, may not necessarily be similar to that of animal skin when estrogens are applied, for evidence that cutaneous effects occur in humans is not as conclusive Most investigators who feel that they see histological changes in the skin of aging women agree that there is very little evidence of alteration of the skin of men or young women[24]

Much of the evidence in support of the alteration of aging skin by the local application of estrogens is histological[25] The changes that have been observed—thickening of the epidermis, extension of the papillae, increase in the amounts of elastic tissue and in the diameter of the collagen bundles—are difficult to quantitate Some of the changes may be due to the angle at which the histological section has been cut Much of this work seems to lack objectivity Seldom have the investigators used control sites of skin treated with the vehicle alone, and seldom have they made their observations on coded slides Goldzieher, Roberts Rawls, and Goldzieher[25a] did observe coded slides

Clinical evidence to support or contradict the opinion that estrogen creams delay or reverse the aging process in the skin is meager Any change is likely to be quite subtle and to develop slowly, thus, adequate controls are very important In one recent well controlled study[26] 27 women of various ages applied an estrogen cream to one side of the face and vehicle to the other side for a period of 91 days, no difference could be detected in the two sides of the face A decision as to whether the subjects of this clinical evaluation represent the type of individuals for whom estrogen creams might be effective and whether the conclusions are justifiable must await further observations of this kind

One should not dogmatically say at this time that the external application of estrogen creams does nothing to aging skin, but good clinical evidence to support a statement to the contrary is not yet available In 1948, Sevringhaus[27] said

> The whole field of percutaneous administration of estrogens has had very little systematic study by qualified investigators Systemic as well as local effects are involved A recent review of the local activity of the sex hormones presents but little helpful information on this part of the problem, but points out the unfortunate exploitation of the public by the purveyors of certain cosmetics The remedy for such undesirable methods of treatment lies in careful study of the field by the medical profession

Eight years later, there is less concern about possible systemic effects, but it is felt that the medical profession has not adequately responded to this challenge, and it has not been proved conclusively that the estrogen creams either do or do not affect the aging skin

Massachusetts General Hospital (14)

The original title of this report as presented at the Symposium was The Emollient Creams and Their Modern Additives

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THE COSMETIC PROBLEM

GUEST EDITORIAL

Arnold J. Lehman, M.D., Ph.D.

During the past several decades, the popularity of cosmetic preparations has increased so considerably that, at present, their general use has become almost a necessity for the average woman. As such, these preparations are leaving the realm of luxury items. This demand has led to the new use of many known substances and the development and extensive manufacture of new synthetic compounds for incorporation into such products. Unfortunately, carefully controlled research by competent investigators, particularly concerning the fundamental principles of skin properties and mechanisms and the related problems in skin pharmacology and toxicology, has not kept pace with the many new products and the claims made in their behalf.

Certain unobjectionable claims have been advanced for the efficacy of certain cosmetic preparations for mitigating skin dryness, hiding skin blemishes and wrinkles, and affording a continued healthy and youthful appearance to the skin. In recent years, however, the trend has been to advertise such products as being more than just cosmetics. Preparations that at one time or another have been misrepresented include hair growers or hair restorers, hair color restorers, dandruff removers, deodorants, lipsticks, cold creams and cleansing creams, and freckle removers. The claims proposed for these products include suggestions that they serve as skin foods, skin rejuvenators, nourishing creams, skin tonics, contour creams for bust development or bust reducing, wrinkle eradicators, and deep pore cleansers. To date, however, no conclusive evidence has been offered in support of many of these claims. For example, there is nothing known to science that will restore color to hair or cure early male baldness.

In accord with this recent advertising trend, a number of biologically active substances such as vitamins and hormones have been incorporated into cosmetic preparations. The claims for these preparations subtly hint at their therapeutic efficacy without actually stating so. Vitamin A supposedly enhances the appearance of the skin. Actually, however, the scientific literature contains no well-substantiated account to support the contention that cosmetics containing vitamin A are of greater value than those that lack it. Similarly, the incorporation of potent ingredients such as the estrogens is without adequate scientific justification. It has not been conclusively proved that estrogen-containing cosmetics have any beneficial effect on age changes, wrinkles, or blemishes. Reports have appeared in the literature to suggest that, after topical application of these products, sufficient absorption from the skin might occur to upset body activity. However, more evidence is needed on this point. The problem does not concern only the safety and efficacy of vitamins and hormones, it extends to the potential harm that indeed may follow the indiscriminate inclusion of other similarly potent chemicals in cosmetic products.

The need for increasing the scope and number of investigations relating to fundamental problems of skin physiology, biochemistry, pharmacology, and toxicology cannot be stressed too strongly. The report by Dr. Blank in this issue of THE JOURNAL (page 412) serves as an illustration of the types of basic study needed to help solve the cosmetic problem.

MEDICAL LICENSURE

The 55th annual report on medical licensure prepared by the Council on Medical Education and Hospitals appears in this issue of THE JOURNAL. Data are presented in the first section concerning the medical examination and the licensure of physicians in the United States and its territories and outlying possessions for 1956. In addition, the report summarizes trends in licensure over many years. Current regulations pertaining to medical licensure are also presented. The boards of examiners in the basic sciences are discussed in the second section of the report and, lastly, the National Board of Medical Examiners.

The report calls attention to the development of examination institutes by the Federation of State Medical Boards of the United States. This commendable effort aimed at uniformity, equivalence, and improvement in the quality of the licensing examination should result in a meaningful evaluation for fitness to practice medicine. The first institute held in February was devoted to the examination in obstetrics and gynecology, and a summarization of the program presented indicated "that the licensing examination should be one that would determine the candidate's appreciation of medical problems and his responsibility toward them at a point beyond the final evaluation by the medical school."

In 1956, a total of 14,543 licenses to practice medicine were issued by 54 boards authorized by law to grant licenses to practice the art and science of medicine. The 14,543 licenses issued last year represented 7,122 granted after a successful written examination and 7,421 granted by reciprocity and endorsement of state licenses or the certificate of the National Board of Medical Examiners.

Additions to the medical profession are reflected in a number of tables included in this study. There were 7,463 physicians who secured their first license to practice medicine and surgery during the calendar

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Chief, Division of Pharmacology, Food and Drug Administration, Department of Health, Education, and Welfare, Washington, D. C.

year 1956 In the same year, 3,659 deaths of physicians were reported to the offices of the American Medical Association Thus, the physician population in the United States and its territories and outlying possessions was increased by 3,804

Failures by graduates of approved medical schools in the United States amounted to 4 5% and by graduates of approved medical schools in Canada 11 5% The percentages of failure in three other groups—graduates of foreign faculties of medicine, unapproved medical schools, and schools of osteopathy—were 43 2, 81 8, and 26 respectively

Provision is made by 33 boards for the issuance of temporary and educational permits, limited and temporary licenses, or other certificates of limited registration The terms for the issuance of these certificates vary and may apply to hospital training, to those ineligible for licensure who seek further educational training, for practice in emergency areas, or for regular practice until the next regular session of the licensing board when permanent licensure is granted The report further outlines the licensure requirements for interns and residents in hospitals, the states which require an internship for licensure, the preprofessional and professional educational requirements of each licensing board, the schedule of written examination dates and reciprocity meetings, medical license fees, licensure on government credentials, and annual registration requirements

A progress report pertaining to the Educational Council for Foreign Graduates, which is attempting to develop an evaluation service for foreign medical graduates, is included The study reveals that graduates of foreign medical schools were examined for medical licensure by 37 boards in 1956 Graduates of 213 medical schools and 5 licensing corporations were examined, representing medical schools in the Philippines, New Zealand, 16 South and Central American countries, 24 countries in Europe, and 13 countries in Asia More than 50 graduates of the universities of Havana, Munich, Bologna, and Mexico City were tested, and more than 20 graduates of 17 other schools were examined The number who were successful in these tests was 1,012 Failures numbered 771, or 43 2% of those examined There was a slight increase in 1956 over the previous year in the numbers examined, while the figure representing those who passed the examination in 1956 decreased as compared with 1955 During 1956 there were 852 foreign-trained physicians licensed who represent additions to the medical profession having secured their first license during the year Of this group, 834 were licensed after written examination and 18 by endorsement of credentials In a seven-year period, it was shown that 4,543 foreign-trained physicians were added to the physician population of the United States

That portion of the report pertaining to the results of examinations given by the 21 boards of examiners in the basic sciences reveals that certificates were issued to 6,107 candidates in 1956 Of these, 3,734 were granted after written examination and 2,373 by reciprocity, endorsement, exemption, or waiver The failure percentage for those reporting this information was 16 6 The basic science laws do not specify that a candidate reveal his school of practice No attempt has been made in this study to differentiate between the schools and the healing art represented by the candidates examined or certified

The last series of tabulations refers to the examinations given by the National Board of Medical Examiners The certificate of the National Board is recognized by the medical licensing authorities of the states, the District of Columbia, and the territories, with the exception of Arkansas, Florida, Georgia, Indiana, Louisiana, Michigan, North Carolina, and Texas There were 2,072 physicians who were certified as diplomates last year The largest number of candidates presenting the same type of credentials for medical licensure by endorsement last year were 3,109 diplomates certified by the National Board of Medical Examiners in 42 states, the District of Columbia, and the territories

This useful and informative study compiled annually by the Council is made available through the cooperation of the various examining and licensing boards, for their cooperation, the Council and THE JOURNAL wish to express appreciation

ADVANCES IN LICENSURE

In the past few years there has been an increasing interest in the Federation of State Medical Boards to improve and reevaluate the whole field of licensure The prime stimulus for this activity has come from two sources—the unanimous decision that a preliminary solution to the foreign-graduate problem had to be found, and the growing interest of the federation to relate itself more closely to the interests of medical education

The turning point in the foreign-graduate problem was reached when, in 1953, it was conceded that the management of the foreign graduate should be approached from a national level in developing a preliminary program The federation joined the Council on Medical Education and Hospitals, the Association of American Medical Colleges, and the American Hospital Association to create the Educational Council for Foreign Graduates, Inc Thus, for the first time, the federation and the other interested groups have determined that educational qualification shall be a prime consideration in dealing with the foreign graduate in the future Prior to this, there had been some experimentation with additional educational requirements in New York and Michigan which indicated the desirability of overcoming educational deficiencies The federation will maintain a strong interest in this direction in the future The state boards are now aware that physicians coming from all over the world present varying levels of educational attainment

Having made this degree of progress in the foreign-graduate problem, the federation has now turned to some of its more domestic problems It has become obvious in recent years that licensure had not reconsidered its position in respect to the advances in modern medical education The teaching institutes of the Association of American Medical Colleges proved to be an excellent pattern for the approach to the reevaluation of the licensing examinations In 1956, the federation ratified a resolution to establish examination institutes designed to improve the local, as well as the national, level of state board examinations It is also expected that the completion of the institutes will result in far wider acceptance of interstate endorsement of medical licenses.

A novel approach to the improvement of licensing examinations is the separation of educational and fitness testing. While this is a somewhat belated recognition of accredited medical education, it serves the purpose of creating a wider interest in medical education as well as a more accurate definition of what the licensing examination should be. In the first institute, determination of the candidate's understanding and appreciation of medical problems at a point beyond graduation from medical school was defined as an objective.

The federation has an expanding interest in all phases of the education of a physician. One paper on the 1956 program was on some aspects of preprofessional education. Recently the attendance of federation members at educational meetings has increased yearly. A number attended the first World Conference on Medical Education in London in 1953.

In looking ahead, licensure will interest itself in improved leadership, periodic evaluation of its position, more uniform thinking on the problems of discipline and narcotic addiction in physicians, improvement of public relations, closer relations with Canadian licensing authorities, and a better understanding of basic concerns. Through the *Federation Bulletin*, more information on the state of medical education in other countries will be provided.

Licensure has abandoned the static state, and it is dedicated to its responsibility in the dynamic progress of the medical profession.

CONVENTION DRUG SAMPLES

During recent medical conventions several unfortunate incidents occurred involving the distribution of drug samples. In one case, a boy about 10 years of age was found wandering alone through the technical exhibit, his pockets filled with almost two dozen bottles and envelopes of multicolored pills. What attracted attention to the lad was his eating one pill after the other. On questioning, he expressed his enjoyment of the candy coatings. Included in his cache was over 14 Gm. (200 grains) of barbiturates. In another such occurrence that eventually could have proved dangerous, a guard stopped a man leaving the exhibit floor, who had evidently just removed his identification badge. When asked to show his credentials, the man ran away, leaving two shopping bags filled with more than 200 samples of various drugs.

A third illustration points out still another cause for alarm. At the close of a moderate sized medical convention a few years ago, a survey was made of the three major hotels that housed the visiting doctors. How much of various products had been distributed during the course of the technical exhibit was known, and it was found that over 80% of the samples collected had been discarded in the wastebaskets of the hotel rooms.

The problem of how to give the doctor samples of pharmaceutical products in such a manner as will not endanger the public health seems to occur at every medical meeting. New attention has been focused by the Food and Drug Administration on this form of physician's sample distribution. While recognizing the common practice of distributing drug samples at medical meetings, Deputy Commissioner John L. Harvey recently reminded pharmaceutical manufacturers of their legal responsibility to insure that prescription drugs be available only to legally authorized persons.

Many physicians and the ethical drug companies are in agreement that letting the doctor see, feel, and then actually test a sample of a product, either on himself or on the proper patient, will supply the most convincing evidence of its efficacy. In addition, both groups are agreed that comprehensive pharmacological data on the drug should accompany the sample. When the physician receives a product by direct mail, it is usually accompanied by package literature. If the detail man delivers the sample, he not only can supply the package literature and reports of research studies but he can answer, or at least obtain answers, to the doctor's queries. In the convention hall, however, while there are usually representatives of the pharmaceutical houses available to provide information along with the sample, it is not unusual to find the samples piled up on the display counter, where they are easily accessible to nonmedical persons. It is this form of dispensing that is potentially hazardous.

There is another method of supplying professional samples to the practicing physician who attends a medical convention, one that has been increasingly adopted over the past few years. This is the use of the registration card that is completed by the doctor when he observes a company's exhibit. It seems, however, that many physicians are hesitant to fill out such a card because of the fear of being deluged by dozens of detail men immediately after the convention. It would appear, on the surface, that a simple solution to allay such apprehension would be to have the registration card include the statement, "Do you wish our professional representative to make a special visit? Yes___No___" On this same card could be a listing of available samples, allowing the doctor to designate his interests. While this method will also relieve the doctor of having to carry various packages from meeting to meeting, at the same time it puts an additional responsibility on the pharmaceutical houses to mail the requested product to the doctor's office within a reasonably short period of time.

There is no doubt that most pharmaceutical manufacturers are concerned over the problem of samples of potent drugs falling into the wrong hands. The Medical Exhibitors Association and the manufacturers have discussed repeatedly what can be done to keep the practice under control. For a convention of the size of the annual American Medical Association meeting, the problem assumes important practical significance.

In consequence of this, an official placard carrying the Medical Exhibitors Association insignia that announces the 'no sampling' procedure will be supplied to and may be used by any of the pharmaceutical companies who will be present as exhibitors at the forthcoming Annual Meeting of the A. M. A. in New York City. This sign will read

Welcome Doctor
For your convenience samples and literature will be delivered
to your home or office as you request

MEDICAL LICENSURE STATISTICS FOR 1956

FIFTY-FIFTH ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

> The data in the following annual report on Medical Licensure Statistics have been compiled by the staff under the supervision of Mrs Anne Tipner, Assistant to the Secretary of the Council on Medical Education and Hospitals The Council desires to express appreciation to the officers of the examining boards and licensing agencies who have cooperated in furnishing the official information essential in the preparation of this report
>
> Edward L Turner, M D , Secretary
> Council on Medical Education and Hospitals

Table of Contents

Page
INTRODUCTION 419
EXAMINATION INSTITUTES 419
MEDICAL LICENSURE STATISTICS 420
STATE BOARDS OF MEDICAL EXAMINERS 420
Licenses Issued 420
Candidates Examined 421
Consolidated Results of Examinations 426
Failures in Medical Licensure Examinations 427
Registration by Reciprocity and Endorsement 429
Licentiates Representing Additions to the Medical Profession 430
Registration of Physicians 1904 1956 435
Graduates of Approved Schools and Others Registered 1952 1956 437
Graduates of Unapproved Medical Schools Registered 1952 1956 437
Graduates of Schools of Osteopathy Registered by Medical Examining Boards 1952 1956 438
Preprofessional Training Requirements of Licensing Boards 439
Professional Educational Requirements of Licensing Boards 440
Approval of Medical Schools 440
Required Internships 441
Temporary and Educational Permits Limited and Temporary Licenses or Other Certificates Issued by State Licensing Boards 441
Licensure Requirements for Interns and Residents in Hospitals 442
Schedule of Written Examination Dates and Reciprocity Meetings 443
Medical License Fees 443
Licensure on Government Credentials 443
Annual Registration 443
Educational Council for Foreign Medical Graduates 445
Licensure of Foreign Trained Physicians 445
Corresponding Officers of Boards of Medical Examiners in the United States Territories and Outlying Possessions 453
BOARDS OF EXAMINERS IN THE BASIC SCIENCES 454
NATIONAL BOARD OF MEDICAL EXAMINERS 457

INTRODUCTION

Statistical compilations regarding medical licensure are presented annually in the State Board Number of THE JOURNAL The report for 1956 constitutes the 55th annual presentation Data are included pertaining to (*a*) medical examining and licensing boards of the United States, the District of Columbia, and the territories and outlying possessions of the United States, (*b*) the boards of examiners in the basic sciences, and (*c*) the National Board of Medical Examiners

The computations presented are based on official records received throughout the year from all medical examining and licensing agencies of all states, Alaska, Hawaii, Guam, Puerto Rico, Virgin Islands, and the Canal Zone The figures for Connecticut also include data reported by the homeopathic medical examining board of that state The homeopathic boards in Louisiana and Maryland had no new licentiates last year By recent legislative action in Maryland, the homeopathic board, after investigation regarding the issuance of spurious licenses was abolished All licenses issued by this board were canceled Data are also included pertaining to the 21 boards of examiners in the basic sciences and, lastly, the National Board of Medical Examiners The Council and THE JOURNAL gratefully acknowledge their appreciation to those who have supplied these data as well as other records furnished throughout the year to the American Medical Association

EXAMINATION INSTITUTES

After several years of concentration on the foreign graduate problem, the Federation of State Medical Boards of the United States turned its attention in 1956 to the concept of reevaluating the licensing examinations Following the idea of the teaching institutes of the Association of American Medical Colleges, the federation appointed a permanent committee to develop a program of institutes to review the major areas of medicine involved in examinations given by state boards

The permanent committee recommended certain objectives which are aimed at uniformity, equivalence, and improvement in quality in the licensing examination One of the essential decisions involved the separation of educational and fitness testing and a clear understanding of what each of these divisions involves The effort will be made in the institutes to direct the licensing examination away from textbook questions and toward problem situations in the exercise of responsibility

The basic pattern of the individual institute will follow a program of analysis in a particular area covered by a licensing examination The first institute was in obstetrics and gynecology, given during the 1957 Annual Congress on Medical Education and Licensure Perhaps the basic question for each institute is, "What should be the type of examination best suited to this particular subject?" In the Obstetrics and Gynecology Institute, one of the significant conclusions reached was that the licensing examination should be one that would determine the candidate's appreciation of medical problems and his responsibility toward them at a point beyond the final evaluation of the medical

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In the descriptive data reference is made to the total number of boards for which figures are reported The figures include the examining and licensing boards in the territories and outlying possessions and also the homeopathic board of Connecticut school This conclusion clearly divides educational and fitness testing by the introduction of the factor of responsibility as something of unusual value in the measurement of fitness

The institute idea takes for granted that the candidate's medical education has been satisfactory, and at the same time it recognizes that the student is restricted in using responsibility Thus, the objective of fitness testing is moved ahead to a point where there has been a more liberal exposure to responsibility and follow through in the definitive care of patients At the same time, examiners are cautioned not to pitch their questions at the level of advanced specialty training, since this is more properly the area for specialty board examinations

The examination institutes seem destined to improve the individual examiner by providing a better understanding of his responsibility It is also evident that the licensing examination will be improved in the general area of continuation education Publication of the final reports of each institute will serve as a reliable guide to future examiners appointed to boards

The motivation to reevaluate the licensing examination stems from the desire to have licensure assume a realistic role in modern medical education

MEDICAL LICENSURE STATISTICS

The tables referring to medical licensure present figures pertaining to the number of candidates examined, the number licensed, and the number who represent additions to the physician population Data are also included pertaining to the regulations for medical licensure both of physicians who secured their professional training in the United States and Canada, and of physicians educated in other countries The state boards are discussed first, followed by the basic science boards and the National Board of Medical Examiners

STATE BOARDS OF MEDICAL EXAMINERS

Licenses Issued

In 1956, 14,543 licenses to practice medicine were issued by 54 boards authorized by law to grant licenses to practice the art and science of medicine The number licensed by each of these boards by examination or by endorsement of credentials is shown in table 1 Of the 14,543 licenses issues, 7,122 were granted after written examination and 7,421 by reciprocity and endorsement of state licenses or the certificate of the National Board of Medical Examiners

Physicians certified in a given year after written examination were not in all instances tested in that year The licensing boards of 27 states, the District of Columbia, Alaska, Canal Zone, Hawaii, Puerto Rico, and the Virgin Islands require a year of internship for licensure The candidate for medical licensure in some of these states is permitted to write the examination before or while serving an internship and, if he is successful, the license is issued on completion of the internship Licenses are withheld in some states for other technicalities In general, also, the licenses of physicians examined in December are dated and issued in the early part of the following year Table 1, therefore, includes some data on physicians who were examined in 1955 and on a few who were examined in previous years The figures presented in this table will not correspond with succeeding tables that deal entirely with physicians examined for licensure within the year 1956 In tables 11, 12, and 13 can be noted the number of physicians who secured their first license in 1956 and who thus represent additions to the medical profession in the United States and its territories and outlying possessions

TABLE 1 –*Licenses Issued, 1956*

	Examination	On the Basis of Reciprocity and Endorsement	Total
Alabama	90	67	157
Arizona	18	87	105
Arkansas	67	31	98
California	490	1 255	1 745
Colorado	104	112	216
Connecticut	37	297	334
Delaware	12	9	21
District of Columbia	10	146	156
Florida	544	0	544
Georgia	203	101	304
Idaho	3	41	44
Illinois	324	228	552
Indiana	181	135	316
Iowa	82	48	130
Kansas	122	65	157
Kentucky	97	136	233
Louisiana	242	95	337
Maine	42	45	87
Maryland	294	198	492
Massachusetts	33	349	382
Michigan	299	234	533
Minnesota	211	150	361
Mississippi	101	47	148
Missouri	242	133	375
Montana	5	36	41
Nebraska	118	34	152
Nevada	2	23	25
New Hampshire	13	47	60
New Jersey	81	384	465
New Mexico	3	48	51
New York State	336	1 019	1,355
North Carolina	209	81	290
North Dakota	28	18	46
Ohio	541	332	873
Oklahoma	91	50	141
Oregon	42	84	126
Pennsylvania	535	186	721
Rhode Island	44	29	73
South Carolina	95	42	137
South Dakota	9	9	18
Tennessee	179	90	269
Texas	366	212	578
Utah	28	45	73
Vermont	16	24	40
Virginia	234	122	356
Washington	63	226	289
West Virginia	26	84	110
Wisconsin	140	121	261
Wyoming	7	20	27
Alaska	0	8	8
Canal Zone	0	3	3
Hawaii	17	17	34
Guam	0	4	4
Puerto Rico	46	14	60
Virgin Islands	0	0	0
Totals	7 122	7 421	14,543

Of the 14,543 licenses to practice medicine and surgery issued in 1956, both by examination and by reciprocity and endorsement of credentials, the greatest number (1,745) were issued in California New York licensed 1,355, while more than 500 each were registered in Florida, Illinois, Michigan, Ohio, Pennsylvania, and Texas Delaware, Idaho, Montana, Nevada, North Dakota, South Dakota, Vermont, and Wyoming issued less than 50 each The fewest (18) were licensed in South Dakota Among the territories and possessions, Puerto Rico licensed 60, Hawaii 34 Alaska 8 Guam 4, and the Canal Zone 3 None were licensed for private practice in the Virgin Islands There was a decrease of 297 in the total number of licenses issued in 1956 as compared with the previous year The decrease in the number licensed after written examination was 257 and by endorsement or reciprocity the decrease totaled 40

Totals of the physicians licensed for 21 previous years, and for 1956, by both examination and reciprocity or endorsement, are included in table 3 Beginning in 1936 there was a marked increase in the number of physicians licensed representing principally the licensure of foreign-trained physicians The increases in 1946 and succeeding years were the result of the increase in the production of physicians by the medical schools of the United States and Canada, the licensure of foreign trained physicians, and in the reciprocity and endorsement group the movement of physicians to other locations for practice In the 22-year period from 1935 to 1956, 252,156 medical licenses have been issued, 138,658 after written examination and 113,498 by endorsement of credentials

Candidates Examined

In table 2 are recorded data referring to applicants for medical licensure by 51 licensing boards[1] For each board is given the number who passed and failed, the medical school of graduation, the percentage of failures for each school as well as each licensing board, and the number of states in which graduates of a given school were examined Approved medical schools in the United States that are no longer in existence, foreign faculties of medicine, unapproved medical schools, and schools of osteopathy are not listed by name, but the numbers examined in these three categories are included after those for existing medical schools in the United States and Canada

Throughout the last calendar year 8,342 candidates were examined, of whom 7,179 passed and 1 163 failed The candidates represented graduates of 76 existing approved medical schools of the United States, 11 approved medical schools of Canada, 2 approved medical schools in the United States no longer in operation, 218 faculties of medicine or licensing corporations of other countries, 5 unapproved medical schools in the United States that are no longer in operation, and 8 schools of osteopathy Osteopaths who were granted the legal right to practice medicine, surgery, or both by the medical examining boards are included in these statistics Osteopaths in other states who were granted the privilege of special practice by other than medical examining boards are excluded from these compilations

Examination and reciprocity meetings are scheduled at frequent intervals by licensing boards in most of the states to facilitate licensure and to enable physicians to commence practice without undue delay Later in this study a tabulation is included giving the schedules for all states The publication of the dates for examinations and reciprocity or endorsement meetings is a regular biweekly feature of THE JOURNAL

Represented among the 8,342 examinees were 6,149 graduates of approved medical schools in the United States of whom 4 5% failed, 165 graduates of approved schools in Canada, with 11 5% failures, 9 who graduated from approved medical schools no longer in operation, all of whom failed, 1,783 graduates of faculties of medicine located in countries other than the United States and Canada, 43 2% of whom failed, 44 graduates of unapproved medical schools at one time in existence in the United States, with 81 8% failures, and 192 graduates of schools of osteopathy, with 26% failures

As in table 1, the 8,342 examinees do not represent an equal number of persons, since a candidate tested in more than one state in a calendar year is counted in each state If a candidate failed more than once in a given state within the year, however, he is counted in that state as an individual or a single failure Figures that show the number of individual licentiates added to the medical profession in 1956 are given in tables 11, 12, and 13

The University of Tennessee, a state university, had the greatest number of graduates for any one school examined for medical licensure in 1956 There were 231 graduates examined, of whom 136 were tested in Tennessee and 95 in 11 other states The greatest number examined from a private school was 175, representing Tulane University School of Medicine, they were tested in 13 states, with 104 being examined in Louisiana, where the school is located Twenty-seven schools each had more than 100 of their graduates examined for medical licensure in 1956 as follows

State and Municipal Schools	No of Examinees	No of States in Which Examinations Were Taken
University of Tennessee	131	12
University of Michigan	194	13
University of Illinois	167	14
Ohio State University	164	7
University of Texas	163	7
Indiana University	161	9
University of Minnesota	129	8
Medical College of Virginia	120	9
State University of Iowa	119	8
University of Kansas	118	4
University of Maryland	118	7
Southwestern Medical School	107	5
Louisiana State University	104	3
University of Cincinnati	104	9
University of Oklahoma	101	5
Private Medical Schools		
Tulane University	175	13
Jefferson Medical College	174	16
St Louis University	138	11
Duke University	128	12
Northwestern University	117	23
Emory University	114	6
Washington University	113	7
University of Pennsylvania	109	16
Temple University	108	13
University of Louisville	107	4
University of Pittsburgh	104	10
Hahnemann Medical College	101	12

The State University of New York at Syracuse, with nine examinees, had the fewest number of applicants for medical licensure by written examination before state boards The majority of the graduates of this

TABLE 2 —CANDIDATES EXAMINE

Marginal Number	SCHOOL	1 Alabama P F	2 Arizona P F	3 Arkansas P F	4 California P F	5 Colorado P F	6 Connecticut P F	7 Delaware P F	8 Dist of Columbia P F	9 Florida P F	10 Georgia P F	11 Idaho P F	12 Illinois P F	13 Indiana P F	14 Iowa P F	15 Kansas P F	16 Kentucky P F	17 Louisiana P F	18 Maine P F	19 Maryland P F	20 P F	21 P
	ALABAMA																					
1	Medical College of Alabama Birmingham	72 0								10 1	2 0											
	ARKANSAS																					
2	University of Arkansas School of Med Little Rock			64 1						1 0										1 0		
	CALIFORNIA																					
3	Coll of Med Evangelists Loma Linda Los Angeles				66 0	2 0				5 1	2 0									4 0		
4	Univ of So California School of Med Los Angeles				66 0																	
5	Stanford University School of Med San Francisco				54 0					1			2 0									
6	Univ of California School of Med San Francisco		1 0		77 0																1 0	
7	Univ of California School of Med Los Angeles				31 0																	
	COLORADO																					
8	University of Colorado School of Medicine Denver		2 0			68 1		1 0					2 0								1 0	
	CONNECTICUT																					
9	Yale University School of Medicine New Haven									2 1												1
	DISTRICT OF COLUMBIA																					
10	Georgetown University School of Medicine					1 0			8 0	6 1				0								
11	George Washington University School of Medicine				1 0			1 0	1 0	15 1	1 0									1 0		1
12	Howard University College of Medicine						0 1		1 1	1 0			2 0	1 0						29 1	1	
	FLORIDA																					
13	University of Miami School of Med Coral Gable						0			24 0	2 0											
	GEORGIA																					
14	Emory University School of Medicine Atlanta									39 4	65 0											
15	Medical College of Georgia Augusta									9 7	67 0											
	ILLINOIS																					
16	Chicago Medical School				4 1					10 1			1 0	4 0								
17	Northwestern University Medical School Chicago	2 0				6 0				10 1			34 5	8 0	1 0	2 0	1 0	3 0				
18	Stritch School of Med of Loyola Univ Chicago				2 0		3			3 1			37 2	2 0						1 0	1 0	
19	University of Chicago The School of Medicine		1 0	1 0	5 0	2 0	2	1 0		4 2			12 1					1 0		1 0	0	
20	University of Illinois College of Medicine Chicago				18 1					10 5			108	2 0	1 0	1 0						
	INDIANA																					
21	Indiana University School of Med Bloomington Indianapolis									8 1			1 1	129 4			1 1					
	IOWA																					
22	State Univ of Iowa College of Medicine Iowa City													1 0	104 1			1 0				
	KANSAS																					
23	University of Kansas School of Medicine Lawrence Kansas City					1 0										112 0						
	KENTUCKY																					
24	University of Louisville School of Med Louisville									31 1			1 1				8 0					
	LOUISIANA																					
25	Louisiana State Univ School of Med New Orleans									[illegible]								9 0				
26	Tulane University School of Medicine New Orleans	1 0								27 13	1 0		2 0					104 0		1 0		
	MARYLAND																					
27	Johns Hopkins Univ School of Med Baltimore				2 0					[illegible]	1 0								1 0	63 0		1
28	University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore				1 0					10 1										93 1		
	MASSACHUSETTS																					
29	Boston University School of Medicine									[illegible]												1
30	Harvard Medical School Boston	1 0			4 0								1 1	1 0				1 0		1 1	3 0	1
31	Tufts University School of Medicine Boston							1 0		7 3	1 0							5 0				
	MICHIGAN																					
32	University of Michigan Medical School Ann Arbor				1 0	1 0				[illegible]			1 0		1 0			2 0			1	1
33	Wayne State University College of Med Detroit				1 1					4 2												1 1
	MINNESOTA																					
34	University of Minnesota Med School Minneapolis				1 0		1 0			[illegible] 1			1 [illegible]									
	MISSOURI																					
35	St Louis University School of Medicine							1 0		4 2			[illegible] 0					2 0				
36	Washington University School of Med St Louis					1 0				6 4												
	NEBRASKA																					
37	Creighton University School of Medicine Omaha		2 0		6 1	1 0							1		6 1	1 0			1 0			
38	University of Nebraska College of Medicine Omaha		2 0			1 0				4 2			2 0		2 0	1 0						
	NEW YORK																					
39	Albany Medical College									7			1 0					1 0				
40	University of Buffalo School of Medicine		1 0							7 3				1 0				2 0				
41	Columbia University College of Physicians and Surgeons New York	1 0			1 0		1 0			8			2 0							2 0		1
42	Cornell University Medical College New York					1 0			1 0	10 2				1 0	1 0							
43	New York Medical College Flower and Fifth Avenue Hospitals			1 0	1 1		1 0			11 5				2 0				3 0			1 0	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	

24 issouri F	25 Montana P F	26 Nebraska P F	27 Nevada P F	28 New Hampshire P F	29 New Jersey P F	30 New Mexico P F	31 New York P F	32 North Carolina P F	33 North Dakota P F	34 Ohio P F	35 Oklahoma P F	36 Oregon P F	37 Pennsylvania P F	38 Rhode Island P F	39 South Carolina P F	40 South Dakota P F	41 Tennessee P F	42 Texas P F	43 Utah P F	44 Vermont P F	45 Virginia P F	46 Washington P F	47 West Virginia P F	48 Wisconsin P F	49 Wyoming P F	50 Hawaii and Puerto Rico P F	Totals	Examined—Passed	Examined—Failed	% Failed	No of Boards Examined by	Marginal Number
							1																				87	85	2	2 3	5	1
1 0																						1 0		1 0		1 0	71	70	1	1 4	7	2
							1	1 0				1 0						1 0								1 0	88	86	2	2 3	12	3
																											67	67	0	0 0	2	4
																											57	56	1	1 8	3	5
																										2 0	81	81	0	0 0	4	6
																											31	31	0	0 0	1	7
													1 0														76	75	1	1 3	6	8
								8 0				1 0	4 0					1									13	11	2	15 4	6	9
					3 0			1 0		1 0			10 0	2 0													34	33	1	2 9	9	10
								1 0		1 0			3 0														28	27	1	3 6	11	11
				1 0	1 0		7 6			1 0			6 0													1 0	64	51	13	20 0	14	12
																											26	26	0	0 0	2	13
								4 0					1 0														114	110	4	3 5	5	14
																											83	76	7	8 4	2	15
							1 0			2 0			1 0											1 0			26	24	2	7 7	8	16
2 0	1 1				2 0		1 0		3 0	2 0			3 0			3 0		1 2				2 0		6 0			117	108	9	7 7	23	17
							1 1			3 0			4 0											8 0			77	73	4	5 2	13	18
	1 0									3 0		2 1												1 0			46	42	4	8 7	16	19
							2 0									1 0						3 0				1 0	167	158	9	5 4	14	20
										1			2 0											1 0		1 0	161	154	7	4 3	9	21
1 0						1 0																		1 0			119	116	3	2 5	8	22
																											118	117	1	0 8	4	23
1 0																											107	102	5	4 7	4	24
3 0																											104	102	2	1 9	3	25
							1 0						3 0					1 0				1 0					175	162	13	7 4	13	26
							2 2										1 0	1 0				1 0					87	82	5	5 7	11	27
							3 0		1 0				2 0										1 0				118	111	7	5 9	7	28
2 0	1 0												3 0					1 1									18	14	4	22 2	6	29
								4 0		1 0			1 0					3 0			1 0						42	41	1	2 4	17	30
													1 0					1 0									21	18	3	14 3	8	31
							1 0	1 0		3 0													1 0			1 0	194	191	3	1 5	13	32
																								1 0			75	71	4	5 3	5	33
									1 0									1 0						1 0			129	127	2	1 6	8	34
19 0				1 0			2 4						2 0									1 0				1 0	138	132	6	4 3	11	35
96 0							2 0																			1 0	113	109	4	3 5	7	36
2 0		38 0			1 0	1 0			1 0							1 0		1 0				3 0				2 0	78	75	3	3 8	18	37
		78 1													1 0												95	92	3	3 2	9	38
							1 0						1 0											1 0			11	11	0	0 0	5	39
			1 0	1 0			2 1	1 0		3 0			8 0														15	12	3	20 0	5	40
1 0																		1 0						1 0			32	31	1	3 1	13	41
							9 0	1 0		2 0			2 0	1 0				1 0									37	35	2	5 4	15	42
							11 3	2 0		1 0			8 0					1 0									52	43	9	17 3	12	43
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

TABLE 2—CANDIDATES EXAMINED

Marginal Number	SCHOOL	1 Alabama P	F	2 Arizona P	F	3 Arkansas P	F	4 California P	F	5 Colorado P	F	6 Connecticut P	F	7 Delaware P	F	8 Dist of Columbia P	F	9 Florida P	F	10 Georgia P	F	11 Idaho P	F	12 Illinois P	F	13 Indiana P	F	14 Iowa P	F	15 Kansas P	F	16 Kentucky P	F	17 Louisiana P	F	18 Maine P	F	19 Maryland P	F	20 Massachusetts P	F	21 Michigan P	F
	NEW YORK—continued																																										
44	New York University College of Medicine																	5	6															4	0							1	
45	State University of New York College of Medicine New York City							1	0	3	0	1	0					3	0					1	0									1	0					1	0		
46	Univ of Rochester School of Med and Dentistry					1	0					1	0			1	0	10	0																	1	0	1	0			1	
47	State Univ of New York College of Med Syracuse																	2	0																							1	
	NORTH CAROLINA																																										
48	Univ of No Carolina School of Med Chapel Hill																		1																								
49	Duke University School of Medicine Durham	1	0					2	0	1	0					1	0	26	5	2	0				1	2	0					1	0										
50	Bowman Gray School of Medicine of Wake Forest College Winston Salem																	7	2																								
	OHIO																																										
51	University of Cincinnati College of Medicine																	2	4					2	1																		
52	Western Reserve Univ School of Med Cleveland																	4	1					1	0																		
53	Ohio State University College of Med Columbus									1	0							10	4					1	0																		
	OKLAHOMA																																										
54	Univ of Oklahoma School of Med Oklahoma City																	3	2	1	0					1	0							3	0								
	OREGON																																										
55	University of Oregon Medical School Portland			1	0			14	1															1	0	1	0	1	0					2	0			2	0			[illegible]	
	PENNSYLVANIA																																										
56	Hahnemann Med Coll and Hosp of Philadelphia							1		1	0							17	7																	1	0	1	0				
57	Jefferson Medical College of Philadelphia	1	0					2	0			1	0			1	0	17	3	1	0	2	0			2	0							1	0					1	0	[illegible]	
58	Temple University School of Medicine Philadelphia	1	0					2	0	1	0							12	4	1	0																					[illegible]	
59	Univ of Pennsylvania School of Med Philadelphia							3	0			1	0					8	1					1	0	1	0							1	0	2	0	2	0			[illegible]	
60	Woman's Med Coll of Pennsylvania Philadelphia							1	0									2	0	1	0			1	0									1	0							1	
61	University of Pittsburgh School of Medicine							1	0									7	1	1	0																						
	SOUTH CAROLINA																																										
62	Medical College of South Carolina Charleston																	3	0																								
	TENNESSEE																																										
63	Univ of Tennessee College of Medicine Memphis	4	0															22	10	1	0													1	0					1	0		
64	Meharry Medical College Nashville	1	0	1	0			1	1									2	1	47	0				1							2	0					2	0				
65	Vanderbilt Univ School of Medicine Nashville																	6	2					1	0																		
	TEXAS																																										
66	Univ of Texas Southwestern Med School Dallas																	2	0															1	0								
67	University of Texas Medical Branch Galveston			2	0																			2	0							1	0	1	0							1	
68	Baylor University College of Medicine Houston			2	0													3	0																								
	UTAH																																										
69	University of Utah School of Med Salt Lake City							1[illegible]	0													1	0	2	0			1	0			1	0					2	0			1	
	VERMONT																																										
70	University of Vermont College of Med Burlington							1	0									5	0																							1	
	VIRGINIA																																										
71	Univ of Virginia School of Med Charlottesville							1	0									6	1															1	0								
72	Medical College of Virginia Richmond															1	0	8	1															1	0								
	WASHINGTON																																										
73	University of Washington School of Med Seattle	1	0					3	0															1	0	2	0					1	0	1	0			2	0			1	
	WISCONSIN																																										
74	University of Wisconsin Medical School Madison			1	0			3	0									1	0					1	0									4	0							4	0
75	Marquette University School of Med Milwaukee							6	0	1	0					1	0	4	4					4	0	2	0							1	0			1	0			4	0
	PUERTO RICO																																										
76	Univ of Puerto Rico School of Med San Juan																			1	0																						
	CANADA																																										
77	Univ of Alberta Faculty of Medicine Edmonton							2	0				1					1	0																								
78	Univ of British Columbia Fac of Med Vancouver																																									1	0
79	Univ of Manitoba Faculty of Medicine Winnipeg							5	0																1	1	0															1	0
80	Dalhousie University Faculty of Medicine Halifax	1	0					1	0				1											1	0											2	0					4	0
81	University of Ottawa Faculty of Medicine						1	0		1	0																									2	0					3	0
82	Queen's University Faculty of Medicine Kingston							1	0									1	1																			3	0			3	0
83	Univ of Western Ontario Faculty of Med London																	1	1													1	0					1	0			1	0
84	University of Toronto Faculty of Medicine							5	0									2	0					1	0													2	0			4	0
85	McGill University Faculty of Medicine Montreal							5	2			1	0	1	0			2	0							1	0	1	0					1	0	1	0	2	0	1	0		
86	University of Montreal Faculty of Medicine							1	0				1											1	0											3	0			1	0		
87	Laval University Faculty of Medicine Quebec							2	2			1	0																							3	1	1	0				
	OTHERS																																										
88	Foreign medical faculties	1	0	2	1			1[illegible]9	48			25	23	3	1	2	0	14	19	5	0			79	18[illegible]	3	3	12	6	5	0					25	18	71	35	16	11	23	
89	Extinct medical schools																		1																						[illegible]		
90	Unapproved medical schools																	4	9																						[illegible]		
91	School of osteopathy									1	0			3	0									10	1	2	0														3		
92	Totals	88		19		68		607		95		67		13		19		723		203		3		529		188		139		122		95		242		61		327		[illegible]		319	
93	Total Examined Passed	88		18		67		548		94		40		12		18		544		203		3		324		181		131		122		95		242		42		290		33		319	
94	Totals Examined Failed	0		1		1		59		1		27		1		1		179		0		0		205		7		8		0		0		0		19		37		45		0	
95	Percentage failed	0 0		5 3		1 5		9 8		1 1		40 3		7 7		5 3		24 7		0 0		0 0		38 7		3 7		5 8		0 0		0 0		0 0		31 1		11 3		5[illegible]		0 0	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21	

P—Passed F—Failed

	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50					
	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Hawaii and Puerto Rico	Totals	Examined—Passed	Examined—Failed	% Failed	No of Boards Examined by
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F					

1 0 2 0 7 4
1 0 4 1 1 0 3 1 1 1 0 1 0 1 0 3 0 2 0 1 0 1 0
1 0 1 0
56 3 79 4 46 0 2 0 2 0 1 0
1 0 1 0 31 21 10 32 3 41
27 26 1 3 7 11 4
23 22 1 4 4 14
9 8 1 11 1
5 2 1 2 1 0 93 0 72 1 113 0 2 0
128 115 10 7 8
3 0 1 0
91 0 1 0 1 0
4 0 1 0 1 0 1 0 1 0 1 0 1 0 30 1 1 0 1 0 104 9
1 0 1 0 11 1 5 0 3 0 8 0 1 1 1 0 4 0
1 1 0 1 1 0 101 99 2 2 0
4 0 2 0 3 0 1 0 1 0 115 0 1 0 74 0 1 0 2 0
1 0 1 0 2 0 15 0 15 0 87 0 2 0 1 0 1 0 67 3 0 1
49 0 1 0 1 0 1 0 1 0 101 91
2 0 2 1 2 0 1 1 2 0 170
1 0 2 0 6 5 2 0 1 0 3 0 108 103
3 0 109 108
4 0 1 0 2 0 28 28
101 101 2 0 2 0 18 0 3 0 3 0
2 2 1 0 0 00
1 0 1 0 9 1 1 0 231 221 10
83 73 10
1 0 1 0 50 48
1 0 107 101
7 1 0 1 0
1 0 1 1 1 1
3 0 6 0 50 48 4 0
1 0
1 0 1 0 1 1
1 0 1 0 1 0 1 0 1 1 14 0 3 0 1 0 71 110
1 0 2 0 3 0 1 0 3 0 31 0 1 0
2 0 1 1 1 0 2 0 1 0 1 0 30 0
1 0 1 0 1 1 0 1 0 84 91
3 1 1 0 1 0 1 0 7 0 11 2 1
2 2 2 1 2 1 1 0 2 0 1 0 1 0
11 9 1 1 1 1 1 1 0 1 0 1 0 1 0 2 0 2 0 2 0 1 0
6 34 11 2 193 274 2 7 2 11 49 2 0 1 0 1 0 3 0
10 0 39 8 1 0 0 17 11
84 31 0 8 0 2 0
85 21 1 783 1 012 771 43 3
9 0 9 100 0
44 9 35 81 8
192 142 50 76 0 11
8 342 7 179
1 163
13 9

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

school are licensed by endorsement of the certificate of the National Board of Medical Examiners This is also true of other schools with small numbers of examinees

There were 165 graduates of 11 approved medical schools in Canada tested for medical licensure in 1956 by 29 boards The figures are given for each licensing board by school in table 2 and numbers examined by each board in table 4 Of the 165 candidates examined, 146 passed and 19, or 11 5%, failed

TABLE 3 —*Licenses Issued 1935 1956*

Year	Examination	Reciprocity and Endorsement	Total
1935	5 725	2 194	7 919
1936	6 276	2 773	9 049
1937	6 629	3 205	9 834
1938	6 517	2 996	9 513
1939	6 400	2 872	9 272
1940	6 289	2 866	9 155
1941	6 057	2 762	8 819
1942	6 152	2 469	8 621
1943	6 062	2 340	8 402
1944	7 080	2 596	9 676
1945	5 580	3 622	9 202
1946	6 567	3 669	10 236
1947	6 763	7 701	14 464
1948	5 995	7 597	13 592
1949	5 252	6 929	12 181
1950	5 454	6 555	12 009
1951	5 716	6 222	11 938
1952	6 212	7 016	13 228
1953	6 565	7 869	14 434
1954	6 827	8 202	15 029
1955	7 408	7 401	14 809
1956	7 122	7 421	14 543
Total	138 668	113 498	252 166

TABLE 4 —*Graduates of Medical Schools in Canada Examined for Licensure in the United States 1956*

	Examined	Passed	Failed
Alabama	1	1	0
California	27	23	4
Connecticut	6	3	3
Delaware	1	1	0
Florida	9	7	2
Illinois	4	3	1
Indiana	2	2	0
Iowa	1	1	0
Kentucky	1	1	0
Louisiana	1	1	0
Maine	12	11	1
Maryland	9	9	0
Massachusetts	2	2	0
Michigan	15	15	0
Minnesota	15	15	0
Missouri	3	2	1
New Hampshire	4	3	1
New Jersey	1	1	0
New York State	13	8	5
North Carolina	1	0	1
North Dakota	13	13	0
Ohio	3	3	0
Oregon	2	2	0
Pennsylvania	6	6	0
Texas	5	5	0
Vermont	1	1	0
Virginia	3	3	0
Washington	3	3	0
Wisconsin	1	1	0
Total	165	146	19

Nine graduates of two approved medical schools no longer in operation were tested in two states, and none were successful Graduates of five unapproved medical schools were examined in three states and graduates of eight schools of osteopathy in 11 states Unapproved schools were represented by 44 graduates, of whom 9 passed and 35, or 81 8%, failed Of 192 osteopathic graduates, 142 passed and 50, or 26%, failed Graduates of 218 foreign faculties of medicine were examined by 36 boards There were 1,783 such graduates, with 771, or 43 2%, failures

Graduates of the University of Miami School of Medicine at Coral Gables, Fla, appeared for the first time in state board examinations in 1956 This school graduated its first class of doctors of medicine last year Twenty-four graduates were examined in Florida and two in Georgia, and all passed Graduates of the University of Puerto Rico School of Medicine also appeared for the first time before state medical examining boards last year Thirteen graduates were examined in five states, of whom two, or 15 4%, failed

Totals for the six categories are given in table 5 It will be noted that 4 5% of the graduates of existing *approved medical schools in the United States* and 11 5% of the graduates of Canadian schools failed The greatest number of failures fell within three groups foreign faculties of medicine, unapproved medical schools, and schools of osteopathy Those in these three groups registered by medical boards are separately discussed in later tables

TABLE 5 —*Source of Candidates Examined for Licensure in the United States, 1956*

Medical Schools	No of Schools	No Examined	No Passed	No Failed	% Failed
Approved schools in United States	70	6 149	5 870	279	4.5
Approved in Canada	11	165	146	19	11.5
Extinct	2	9	0	9	100 0
Foreign	218	1 783	1 012	771	43.2
Unapproved schools	5	44	9	35	81.8
Schools of osteopathy	8	192	142	50	26 0
Total		8 342	7 179	1 163	13 9

Consolidated Results of Examinations

The combined results of two groups of examinations, the state medical board examinations and part 3 of the examinations of the National Board of Medical Examiners, are given in table 6 This table represents a comprehensive analysis of the performance of physicians from individual schools It will be noted that in some instances schools having failures before state licensing boards had few, if any, failures before the National Board

In 1956 there were 6,149 graduates of approved medical schools in the United States examined by state boards, of whom 4 5% (279) failed In the same calendar year 2,106 graduates of these schools were tested in the final examination of the National Board, and 12 failed In both groups, a total of 8,155 were examined, of whom 7,864 passed and 291, or 3 6%, failed

Of the graduates of Canadian medical schools, 11 5% failed state board examinations in the United States and one failed the National Board test Only 19 graduates of foreign medical schools were examined by the National Board, while 1,783 were examined by state boards The National Board did not examine in 1956 any graduate of an approved medical school no longer in existence There were also none examined by *the National Board in the unapproved medical* school or osteopathic categories There is no comparison to be made in the three groups last mentioned

The total of all candidates examined by state boards was 8,342, of whom 7,179 passed and 1,163, or 13 9% failed For both groups—state boards and the National Board—10,427 were examined, 9,251 passed and 1 176 or 11 3%, failed

Failures in Medical Licensure Examinations

Licensure failures in 1956 before state medical licensing boards are further analyzed in table 7 In this tabulation is given the number examined in each state the number who failed the examination and the percentage of failures

TABLE 6 – *Combined Results of Examinations of State Boards and the National Board of Medical Examiners 1956*

School	Results by Medical Examining Board Tests P	F	Part 3 Examination of National Board of Medical Examiners P	F	Total Examined	Totals P	F	% Failed
Medical College of Alabama	85	2	0	0	87	85	2	2 3
University of Arkansas	70	1	7	0	78	77	1	1 3
College of Med Evangelists	86	2	31	0	119	117	2	1 7
Univ of Southern Calif	67	0	1	0	68	68	0	0 0
Stanford University	56	1	11	0	68	67	1	1 5
Univ of California L A	31	0	8	0	39	39	0	0 0
Univ of California S F	81	0	1	0	82	82	0	0 0
University of Colorado	75	1	2	0	78	77	1	1 3
Yale University	11	[illegible]	[illegible]	[illegible]	91	[illegible]	[illegible]	1 1
Georgetown University	33	1	78	1	113	111	2	1 8
George Washington Univ	27	1	69	1	98	96	2	2 0
Howard University	[illegible]	13		0	69	[illegible]	13	18 8
University of Miami	26	0		0	26	26	0	0 0
Emory University	110	1	0	0	111	110	1	0 9
Medical College of Georgia	76	7	0	0	83	76	7	8 4
Chicago Medical School	[illegible]	2	1	0	89	[illegible]	2	[illegible]
Northwestern University	108	9	[illegible]	1	[illegible]	[illegible]	10	[illegible]
Stritch School of Medicine	[illegible]	4	[illegible]	0	108	[illegible]	4	[illegible]
University of Chicago	[illegible]	4	31	0	90	[illegible]	4	4 4
University of Illinois	[illegible]	9	[illegible]	0	198	189	9	4 5
Indiana University	[illegible]	7	[illegible]	0	163	156	7	4 3
State University of Iowa	116	3	7	0	126	123	3	2 4
University of Kansas	117	1	4	0	122	121	1	0 8
University of Louisville	102	4	4	0	110	106	4	3 6
Louisiana State University	104	2	3	0	109	107	2	1 8
Tulane University	162	13	0	0	175	162	13	7 4
John Hopkins University	82	5	8	0	95	90	5	5 3
University of Maryland	111	7	6	0	124	117	7	5 7
Boston University	14	4	74	1	93	88	5	5 4
Harvard Medical School	41	1	109	0	151	150	1	0 7
Tufts College Med School	18	3	112	0	133	130	3	2 3
University of Michigan	191	3	7	0	201	198	3	1 5
Wayne University	71	4	0	0	75	71	4	5 3
University of Minnesota	127	2	3	0	132	130	2	1 5
St Louis University	132	6	6	0	144	138	6	4 2
Washington University	109	4	18	0	131	127	4	3 1
Creighton University	75	3	9	0	87	84	3	3 4
University of Nebraska	92	3	3	0	98	95	3	3 1
Albany Medical College	11	0	52	0	63	63	0	0 0
State Univ N Y Brooklyn	[illegible]	1	130	0	[illegible]	[illegible]	1	0 6
University of Buffalo	12	3	66	1	82	78	4	4 9
Columbia University	31	1	109	1	142	140	2	1 4
Cornell University	35	2	68	1	106	103	3	2 8
New York Medical College	43	9	122	1	175	165	10	5 7
New York University	21	10	135	1	167	156	11	6 6
University of Rochester	22	1	43	0	66	65	1	1 5
State Univ N Y Syracuse	8	1	75	0	84	83	1	1 2
Univ of North Carolina	57	4	0	0	61	57	4	6 6
Duke University	118	10	9	0	137	127	10	7 3
Bowman Gray Sch of Med	54	2	0	0	56	54	2	3 6
University of Cincinnati	97	7	2	0	106	99	7	6 6
Western Reserve University	78	2	13	0	93	91	2	2 1
Ohio State University	160	4	2	0	166	162	4	2 4
University of Oklahoma	99	2	2	0	103	101	2	1 9
University of Oregon	65	2	16	0	83	81	2	2 4
Hahnemann Med College	94	7	49	0	150	143	7	4 7
Jefferson Medical College	170	4	18	0	192	188	4	2 1
Temple University	103	5	43	0	151	146	5	3 3
University of Pennsylvania	108	1	33	0	142	141	1	0 7
Woman s Medical College	28	0	22	0	50	50	0	0 0
University of Pittsburgh	101	3	7	0	111	108	3	2 7
Med Col of So Carolina	65	0	0	0	65	65	0	0 0
University of Tennessee	221	10	2	0	233	223	10	4 3
Meharry Medical College	73	10	0	0	83	73	10	12 0
Vanderbilt University	48	2	1	1	52	49	3	5 8
Southwestern Med School	104	3	0	0	107	104	3	2 8
University of Texas	156	7	0	0	163	156	7	4 3
Baylor University	76	1	1	0	78	77	1	1 3
University of Utah	48	2	0	0	50	48	2	4 0
University of Vermont	15	1	28	0	44	43	1	2 3
University of Virginia	71	5	1	0	77	72	5	6 5
Medical College of Virginia	110	10	8	0	128	118	10	7 8
University of Washington	50	0	2	0	52	52	0	0 0
University of Wisconsin	84	0	5	0	89	89	0	0 0
Marquette University	91	6	11	0	108	102	6	5 6
University of Puerto Rico	11	2	25	0	38	36	2	5 3
Subtotals U S schools	5 870	279	1 991	12	8 152	7 861	291	3 6
University of Alberta	7	1	0	0	8	7	1	12 5
Univ of British Columbia	0	0	1	0	1	1	0	0 0
University of Manitoba	27	1	0	0	28	27	1	3 6
Dalhousie University	7	1	3	0	11	10	1	9 1
Queen s University	10	1	5	0	16	15	1	6 3
University of Ottawa	16	1	3	0	20	19	1	5 0
Univ of Western Ontario	7	1	1	0	9	8	1	11 1
University of Toronto	20	3	8	0	31	28	3	9 7
McGill University	30	3	36	1	70	66	4	5 8
University of Montreal	10	2	1	0	13	11	2	15 4
Laval University	12	5	1	0	18	13	5	27 8
Subtotals Can schools	146	19	59	1	225	205	20	8 9
Extinct medical schools	0	9	0	0	9	0	9	100 0
Unapproved med schools	9	35	0	0	44	9	35	81 8
Osteopathic schools	142	50	0	0	192	142	50	26 0
Foreign medical faculties	1 012	771	19	0	1 802	1 031	771	42 7
Totals	7 179	1 163	2 072	13	10 427	9 251	1 176	11 3

TABLE 7 – *Failures in Medical Licensure Examinations*

State in Which Examined	No Examined	No Failed	% Failures
Alabama	88	0	0 0
Arizona	19	1	5 3
Arkansas	68	1	1 5
California	60	9	9 8
Colorado	92	1	1 1
Connecticut	67	27	40 3
Delaware	13	1	7 7
District of Columbia	19	1	5 3
Florida	733	179	24 4
Georgia	[illegible]	0	0 0
Idaho	[illegible]	0	0 0
Illinois	599	[illegible]	[illegible]
Indiana	188	7	3 7
Iowa	139	8	5 8
Kansas	[illegible]	0	0 0
Kentucky	9	0	0 0
Louisiana	[illegible]	0	0 0
Maine	61	19	31 1
Maryland	[illegible]	37	11 3
Massachusetts	78	45	57 7
Michigan	310	0	0 0
Minnesota	219	1	0 5
Mississippi	101	0	0 0
Missouri	[illegible]	12	4 6
Montana	6	1	16 7
Nebraska	120	2	1 7
Nevada	[illegible]	0	0 0
New Hampshire	18	5	27 8
New Jersey	95	14	14 7
New Mexico	5	2	40 0
New York	693	358	51 6
North Carolina	221	12	5 4
North Dakota	30	2	6 7
Ohio	77	[illegible]	10 0
Oklahoma	91	0	0 0
Oregon	44	2	4 5
Pennsylvania	[illegible]	0	0 0
Rhode Island	[illegible]	8	15 4
South Carolina	6	0	0 0
South Dakota	9	0	0 0
Tennessee	179	0	0 0
Texas	393	28	7 1
Utah	19	3	15 8
Vermont	4	0	0 0
Virginia	[illegible]	42	15 2
Washington	63	0	0 0
West Virginia	96	0	0 0
Wisconsin	[illegible]	0	0 0
Wyoming	7	0	0 0
Alaska Guam Hawaii and Puerto Rico	84	22	26 2
Totals	8 342	1 163	13 9

The following nine approved schools in the United States had no failures among their graduates in medical licensing examinations last year

	No of Graduates Examined	No of States in Which Examinations Were Taken
University of Southern California	67	2
University of California San Francisco	81	3
University of California Los Angeles	31	1
University of Miami	26	2
Albany Medical College	11	5
Woman s Medical College	28	11
Medical College of South Carolina	65	[illegible]
University of Washington	50	16
University of Wisconsin	84	13

TABLE 8.—RECIPROCITY AND ENDORSEMENT

Reciprocates with or Endorses Certificates Granted by

Marginal Number	The Examining Board of	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	Marginal Number
1	Alabama																															1
2	Arizona																															2
3	Arkansas	+	+		+	+	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+		+	+	3
4	California																															4
5	Colorado																															5
6	Connecticut								+			+	+	+		+		+	+	+	+	+							+			6
7	Delaware																															7
8	District of Columbia																															8
9	Florida	No reciprocity or endorsement policies																														9
10	Georgia	+		+	+	+			+				+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	10
11	Idaho																															11
12	Illinois	+		+	+	+	+				+			+	+	+	+	+		+	+	+		+	+		+	+		+		12
13	Indiana																															13
14	Iowa																															14
15	Kansas																															15
16	Kentucky																															16
17	Louisiana	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	17
18	Maine			+	+	+	+	+	+		+			+	+	+	+	+			+	+	+		+	+	+	+	+	+	+	18
19	Maryland	+		+	+		+	+	+		+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	19
20	Massachusetts	+					+	+	+		+	+		+	+	+	+	+	+	+				+	+	+			+	+		20
21	Michigan	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	21
22	Minnesota	+	+[11]	+	+	+[11]	+[11]	+	+		+	+[11]	+	+[11]	+	+[11]	+[11]	+	+	+	+[11]	+		+	+	+	+	+	+[11]	+	+	22
23	Mississippi	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	23
24	Missouri	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	24
25	Montana																															25
26	Nebraska	+	+	+	+	+	+		+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	26
27	Nevada	+		+	+	+			+		+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+		+	+		27
28	New Hampshire																															28
29	New Jersey	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	29
30	New Mexico	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		30
31	New York																															31
32	North Carolina	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	32
33	North Dakota	+		+	+	+					+		+	+	+	+	+	+	+			+			+	+	+	+	+	+	+	33
34	Ohio	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	34
35	Oklahoma																															35
36	Oregon	+	+	+	+	+	+	+			+	+	+	+	+		+	+	+	+		+	+	+	+	+	+	+	+	+	+	36
37	Pennsylvania																															37
38	Rhode Island		+	+	+	+	+		+		+	+	+	+	+	+	+			+	+	+	+	+	+		+	+	+	+	+	38
39	South Carolina																															39
40	South Dakota	+	+	+	+	+					+		+	+	+	+	+	+				+	+	+	+	+	+	+			+	40
41	Tennessee	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	41
42	Texas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	42
43	Utah	+	+	+	+	+	+	+				+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	43
44	Vermont																															44
45	Virginia									[13]																		[13]				45
46	Washington																															46
47	West Virginia	+		+	[20]	[20]	+	+	+		+		+	[20]	[20]	[20]	[20]	+	+	+	[20]	+	+	+	+	+	+	+		+		47
48	Wisconsin	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
49	Wyoming																															49
50	Alaska	+		+	+	+	+		+					+		+	+			+		+	+	+	+			+	+	+		50
51	Canal Zone																															51
52	Guam																															52
53	Hawaii	No reciprocal relations																														53
54	Puerto Rico																					+			+		+					54
55	Virgin Islands	No reciprocal relations																														55

This summary should be supplemented by direct communication with the

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Some states have additional requirements for graduates of schools outside the United States and Canada.

+ indicates reciprocal or endorsement relationships have been established. indicates no reciprocal or endorsement relationships have been established. (See column— At the discretion of the board.)

1 1st P first papers required ⊕ in citizenship column indicates full citizenship required in other columns it implies a requirement

2 In most cases there is a small additional recording or registration fee

3 Year of practice after internship required

4 Internship accepted in lieu of one year's practice

5 Two years professional practice required

6 All applicants must be graduates of a medical school approved by the American Medical Association

7 Just preceding application

8 Not required if applicant has been in practice more than 5 years

9 Basic science certificate required either by reciprocity or examination in addition to basic science subjects of National Board

10 Canadian citizens are required to file first papers

11 Not applicable to citizens of Canada

12 Oral examination required when application is based on a licen e dated five or more years prior to filing application

13 No reciprocity

14 Oral examination required

15 Endorsement of National Board of Medical Examiners $35

16 Actual practice for a period of three years immediately preceding date of application

17 Practical clinical examination required

18 In lieu of its own examination certificate of National Board may be accepted in whole or in part

19 Minimum fee

20 Licentiates of California Colorado Indiana Iowa Kansas Massachusetts New York and Rhode Island accepted on reciprocal basis at discretion of board

21 Not required if country in which applicant is licensed will admit to practice citizens of the United States licensed to practice in some

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Thirty-eight schools had less than 5% and 19 had between 5 and 10% failures among their graduates. There were 10 schools with 10% or more failures in state examinations. The over-all figures and percentages for failures are modified when included with the results of the final examinations of the National Board of Medical Examiners (table 6).

It can be noted, referring to table 4, that those states with high percentages of failures examine a considerable number of foreign-trained physicians. The one exception is Florida. This state has no reciprocal provisions for medical licensure, and physicians planning semiretirement in a more ideal climate seek licensure in this state. Many of these physicians graduated from medical school in the early years of the century and experience difficulty in writing examinations.

In general, state licensing boards require the applicant to receive an over-all average of 75%, and at least 60% in any one subject. In case of failure in not more than two subjects, the applicant is permitted a second examination within 12 months. A few states consider such persons as conditioned in the subjects in which they fail. Conditioned candidates are not counted as failures in these statistics. When their grades are raised after a successful examination, they are recorded among those who passed.

	Reciprocates with or Endorses Certificates Granted by																							Requirements						
Marginal Number	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska	Puerto Rico	At the Discretion of the Board	National Board of Medical Examiners	Basic Science Certificate	Internship	Professional Practice	Citizenship [1]	Fees Dollars *	Miscellaneous	Marginal Number
1																						+	+		⊕	1[4]	⊕[11]	50	47	1
2																						+	+	⊕	⊕	3[18]	1st P	100	42	2
3		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				⊕		1[4]	⊕	50	4	3
4																						+	+		⊕	0	⊕[21]	100	1	4
5																						+[13]	+[1]	⊕	⊕		⊕	50	43	5
6				+			+	+			+	+		+			+					+	+	⊕[4]		3[16]	1st P[10]	75	14 4	6
7																						+	+[5]		⊕	2	⊕	100	4	7
8																						+	+	⊕[3]	⊕	1[7]		50		8
9																														9
10		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+		+[3]			0	⊕	50		10
11																						+	+		⊕		⊕	100		11
12		+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+			+[1]		⊕	1	1st P	25	1 4	12
13																						+				1[4]		100		13
14																						+	+	⊕	⊕	1[4]	1st P	50	29 6	14
15																						+	+		⊕	1[4]	⊕	50	28 4	15
16																						+	+		⊕		⊕	75	4	16
17	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+							1[4]	1st P[10] [10]	50[8]	4	17
18			+	+	+	+	+		+		+	+	+	+	+		+	+	+				+		⊕	1[4]	⊕	52		18
19	+	+		+	+	+	+	+	+		+	+		+	+		+	+		+	+	+	+			1[4]	1st P	50	47	19
20	+	+		+	+		+	+	+		+	+	+	+	+		+	+				+	+			0	1st P	50		20
21	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	⊕[3]	⊕	1[4]	⊕	100	34	21
22	+[41]	+		+[41]	+	+	+	+[41]		+	+	+		+	+	+	+	+	+	+		+	+	⊕		0	1st P	100	11 1 12	22
23		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+				⊕[11]	50		23
24	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+[2]		⊕[33]	1[4]	⊕	100	42	24
25																						+	+			1[4]	⊕	75	14 42	25
26	+	+	+	+	+	+			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	⊕		1[4]	⊕	50[8]		26
27	+	+		+	+	+	+	+		+	+	+	+	+		+	+	+		+			+	⊕	⊕	1[4]	⊕	200	14 4	27
28																						+	+		⊕	0	⊕[11]	50		28
29	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+		⊕	0	⊕	100		29
30	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	⊕		1[4]	1st P	50		30
31																						+	+			2	1st P	40		31
32	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+				0	⊕	100	4 6	32
33		+		+	+	+	+		+	+		+	+	+	+	+	+	+	+	+	+	+	+		⊕	1	⊕[11]	50	14 4	33
34	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+			1[4]	⊕	50		34
35																						+	+	⊕[3]	⊕	1[4]		100	11 6	35
36	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+[9, 2]	⊕	⊕		⊕	100	6 4	36
37																						+	+		⊕	2[4]	1st P	50	4	37
38		+		+	+		+				+			+		+	+	+	+			+[14]	+[14]	⊕	⊕	0	1st P	25	14	38
39																						+	+		⊕	1[4]	⊕	100	42	39
40		+	+	+	+	+			+		+	+	+	+	+	+	+	+	+				+	⊕	⊕	1	1st P	50		40
41	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+			+	+[30]	⊕		0	⊕	50	2	41
42	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		⊕		0		100		42
43	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			+	+		⊕	[31]		50	4	43
44																						+	+		⊕	1[4]	⊕	50	11	44
45																[13]						+[31]	+			2[3]	1st P	100		45
46																						+	+	⊕	⊕	0		25		46
47	[20]	+	+	+	+	+	+	[6]	+	+	+	+	+	+	+			+	+	+	+		+		⊕	0	⊕	100		47
48	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+[14]	+[18]	⊕	⊕	1[6]	1st P	75[10]	6	48
49																						+[11]	+[14]		⊕	0	⊕	50		49
50		+	+	+	+	+					+	+	+	+	+	+	+	+					+	⊕	⊕	0	⊕	100	6	50
51																						+	+[2]		⊕	2[14]		5		51
52																						+	+			0		50	6	52
53																							+		⊕		1st P	25	42 6	53
54			+						+									+				+[5, 39]	+		⊕	1[5]	⊕	30		54
55																									⊕			65	42	55

secretary of the licensing board of the state in which the physician is interested

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state or on proof of requirements similar to those required by California for graduates of foreign medical schools

22 At discretion of Health Bureau

23 Oral examination required if applicant s state requires it

24 If the applicant passes the examination in the state from which he transfers after the completion of his internship no practice is required

25 May require oral examination

26 Internship accepted at the discretion of the board as the equivalent of two years practice

27 Fee $25

28 Fee same as applicant s state charges but not less than $50

29 A two year internship or a year of residency is accepted

30 Diplomates of National Board not required to have been in practice for three years

31 Same as required of candidates of state applyin for licensure

32 Not required for licensure by reciprocity

33 Reciprocity applicants only

34 Supplemental examination required in certain cases when accepting the examination of a state with whom reciprocal relations have not been established

35 Applicants issued certificates prior to October 1953 acceptable

36 Fee same as applicant s state charges but not less than $75

37 For matriculants after Oct 15 1937

39 Reciprocity extended at discretion of board to candidates whose qualifications would entitle them to admission to examination and who took examination equivalent to that required by this board

40 Permanent license withheld until completion of citizenship

41 At the discretion of the board

42 Graduates of foreign medical schools are not accepted for licensure by reciprocity

43 Reciprocity extended at discretion of board to states having comparable licensin requirements and which accept Colorado applicants on a substantially equal reciprocal basis

44 Consecutive years immediately preceding application

45 Graduates of foreign medical school not accepted

Of the 14,543 persons obtaining licenses in 1956, 254 failed state board tests before obtaining a license Of these 127 had one failure 55 had two failures 26 had three failures, and 18 had four or more failures Twenty-eight physicians had failures ranging from 5 to 12 in tests before securing licensure

Registration by Reciprocity and Endorsement

A summary of the reciprocity and endorsement policies pertaining to medical licensure is included in table 8 One state, Florida, requires all applicants for medical licensure to pass a written examination Hawaii and the Virgin Islands do not have reciprocal relations with any state, but Hawaii will endorse physicians certified by the National Board of Medical Examiners Twenty boards require applicants for licensure to obtain a certificate from the board of examiners in the basic sciences of the state In the section of this report pertaining to basic science boards is included a table outlining the reciprocity, endorsement, exemption, or waiver policies of the basic science boards

Twenty-seven states, Alaska, and Puerto Rico have reciprocal agreements with specific states In 23 states reciprocity is extended at the discretion of the licensing board Eighteen states, which have reciprocal agreements also have similar discretionary powers to endorse applicants from nonreciprocating states who present credentials that correspond with those required by their respective states in the year issued. Also in this table is a column indicating the recognition accorded the certificate of the National Board of Medical Examiners.

Additional requirements including professional practice, citizenship, oral examination, internship, and the fee for a license by reciprocity or endorsement, are also recorded. In some states physicians of Canadian birth are exempt from the citizenship requirement. This is indicated by footnote. Few states will accept graduates of foreign faculties of medicine on a reciprocal basis. Other requirements or exemptions are indicated by footnotes; footnote numbers are referred to in the column headed "Miscellaneous."

This chart will be made available in reprint form. It is helpful to physicians who are considering a change in location. The facts recorded in this table are intended to present merely statements of licensure policies. The information here given should be supplemented by direct communication with the licensing boards. A list of the executive officers in charge of medical licensure appears elsewhere in this report.

The procedure in issuing licenses by reciprocity or endorsement varies. Some states consider applications for licensure at any time, while others hold monthly, quarterly, or semiannual meetings. The policy in effect in each state is shown in table 24. In addition, THE JOURNAL publishes biweekly the exact dates when applications are considered.

In table 9 are presented data pertaining to the credentials accepted as the basis for licenses granted without written examination in 1956. There were 7,421 so registered on the basis of licenses issued by other boards, the certificate of the National Board of Medical Examiners, by special exemption, and by acceptance of service with an agency of the government of the United States.

California issued the greatest number of licenses by this method. In this state 1,255 were registered. New York licensed 1,019. Four other states licensed more than 275—Connecticut 297, Massachusetts 349, New Jersey 384, and Ohio 332. The largest number of candidates presenting the same type of credential were the 3,109 diplomates certified by the National Board of Medical Examiners.

There were 321 licenses that were issued in Illinois, 213 in Maryland, 223 in New York, 265 in Ohio, and 264 in Pennsylvania presented to other states for reciprocal registration. California, which issued the greatest number of licenses by reciprocity or endorsement (1,255), certified only 147 of its licentiates to other states. Figures for other states were fewer than 250. Thirty-four medical officers of one of the federal services received licenses by endorsement of military credentials in five states. Twenty-five were licensed by nine boards on the basis of a license issued in Alaska, Hawaii, or Puerto Rico, 20 by five boards on the basis of Canadian or foreign credentials, and three were licensed in the Virgin Islands by special endorsement for civilian practice.

In table 10 are reported the numbers from individual schools represented by the 7,421 reciprocity licentiates. Every approved medical school in the United States and the University of Puerto Rico had graduates licensed without written examination in 1956. All of the approved Canadian schools were so registered with one exception—the University of British Columbia. The 7,421 licentiates included 6,985 graduates of approved schools in the United States and Puerto Rico and 121 from Canadian medical schools. Licenses without written examination were obtained by 180 foreign-trained physicians in 26 states, and 24 graduates of approved medical schools no longer in operation were registered in 13 states. Twenty graduates of unapproved medical schools secured licenses in 9 states, and 91 graduates of schools of osteopathy were registered in 10 states. This table reflects the movement of physicians to states other than the one in which they obtained their professional training or in which they first established their practice.

Licentiates Representing Additions to the Medical Profession

The numbers of licentiates of 1956 who received their first license to practice medicine and surgery during the last calendar year and thus represent additions to the medical profession is shown in table 11. The compilation of this table includes candidates examined and licensed in 1956, some who were examined in previous years but whose licenses were withheld until 1956 pending completion of a required internship, citizenship, or other technicalities, and physicians not previously licensed in any state who were certified during the year on the basis of the examination of the National Board of Medical Examiners. The figures also include physicians licensed on the basis of government credentials, those who received Canadian licenses, and those licensed by special exemption. The majority represented are recent graduates.

There were 7,463 additions to the medical profession in the United States and its territories and outlying possessions. In 1956, 3,659 deaths of physicians were reported to the offices of the American Medical Association. Deducting the number of deaths in 1956 from the number of persons licensed for the first time, it will be seen that there was a net increase of 3,804 in the physician population last year.

Among the 7,463 licentiates representing additions to the medical profession in the last calendar year were 6,035 who secured their licenses by examination and 1,428 by endorsement of credentials. The majority of the latter were diplomates of the National Board of Medical Examiners.

The numbers of first licentiates, arranged in nine geographical divisions, are compiled in table 12. The geographical divisions representing the greatest number of additions to the medical profession were the Middle Atlantic States with 1,532, the East North Central States with 1,437, and the South Atlantic States with 1,210. More than 400 were added in each of five other groups: West North Central 824, Pacific 720,

TABLE 9.—Candidate Licensed by Reciprocity and Endorsement of Credentials 1956

Source of Former License or Credentials

Marginal Number	Source of Former License or Credentials	Totals
1	Alabama	19
2	Arizona	2
3	Arkansas	65
4	California	117
5	Colorado	78
6	Connecticut	10
7	Delaware	7
8	District of Columbia	[illegible]
9	Florida	11
10	Georgia	100
11	Idaho	8
12	Illinois	321
13	Indiana	120
14	Iowa	102
15	Kansas	101
16	Kentucky	[illegible]
17	Louisiana	148
18	Maine	[illegible]
19	Maryland	213
20	Massachusetts	[illegible]
21	Michigan	188
22	Minnesota	170
23	Mississippi	61
24	Missouri	[illegible]
25	Montana	4
26	Nebraska	190
27	Nevada	0
28	New Hampshire	4
29	New Jersey	[illegible]
30	New Mexico	[illegible]
31	New York	223
32	North Carolina	99
33	North Dakota	7
34	Ohio	[illegible]
35	Oklahoma	[illegible]
36	Oregon	74
37	Pennsylvania	204
38	Rhode Island	17
39	South Carolina	51
40	South Dakota	7
41	Tennessee	189
42	Texas	136
43	Utah	22
44	Vermont	[illegible]
45	Virginia	100
46	Washington	[illegible]
47	West Virginia	32
48	Wisconsin	[illegible]
49	Wyoming	7
50	U S Govt Services	34
51	National Board of Medical Examiners	3 109
52	Alaska Canal Zone Hawaii Puerto Rico Philippine Islands	[illegible]
53	Canadian and Foreign	20
54	Special Endorsement	3
55	Total Licensed	7 421

States Issuing Licenses by Reciprocity or Endorsement	Total Licensed (55)
Alabama	67
Arizona	[illegible]
Arkansas	31
California	[illegible]
Colorado	112
Connecticut	[illegible]
Delaware	9
District of Columbia	146
Florida	0
Georgia	101
Idaho	41
Illinois	228
Indiana	[illegible]
Iowa	48
Kansas	[illegible]
Kentucky	136
Louisiana	[illegible]
Maine	[illegible]
Maryland	198
Massachusetts	349
Michigan	234
Minnesota	[illegible]
Mississippi	[illegible]
Missouri	133
Montana	36
Nebraska	34
Nevada	23
New Hampshire	47
New Jersey	384
New Mexico	48
New York	1 019
North Carolina	81
North Dakota	18
Ohio	332
Oklahoma	50
Oregon	84
Pennsylvania	186
Rhode Island	29
South Carolina	49
South Dakota	9
Tennessee	90
Texas	212
Utah	[illegible]
Vermont	24
Virginia	172
Washington	220
West Virginia	84
Wisconsin	191
Wyoming	20
Alaska Canal Zone Guam Hawaii and Puerto Rico	46
Totals	7 421

TABLE 10—CANDIDATES LICENSED BY

Marginal Number	Marginal Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	SCHOOL	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland
	ALABAMA																			
1	Medical College of Alabama Birmingham				2						1			1			1	3		
	ARKANSAS																			
2	University of Arkansas School of Medicine Little Rock	3	1		4						2		1	1		2	2	10		1
	CALIFORNIA																			
3	College of Medical Evangelists Loma Linda Los Angeles				12	4			1		2	3	2			1	3			1
4	University of Southern California School of Medicine L A				1		1				1							1		1
5	Stanford University School of Medicine San Francisco		1		9	1	1		1			1	2					1	1	
6	*University of California School of Medicine San Francisco*		2		6	1			1											1
7	University of California School of Medicine Los Angeles				2															
	COLORADO																			
8	University of Colorado School of Medicine Denver		2	1	21							1	1		1		2			
	CONNECTICUT																			
9	*Yale University School of Medicine New Haven*				19		25		1		1		1		1		1		2	4
	DISTRICT OF COLUMBIA																			
10	Georgetown University School of Medicine	1			7		9		16		1		2				3			[illegible]
11	George Washington University School of Medicine	1	1		26	1	4	1	23		1		2		3		4			[illegible]
12	Howard University College of Medicine	1	1		15	1	2		14		1			1						4
	FLORIDA																			
13	University of Miami School of Medicine Coral Gables																			
	GEORGIA																			
14	Emory University School of Medicine Atlanta	6		1	1		2				1							4		1
15	Medical College of Georgia Augusta	1			4								1				1	6		
	ILLINOIS																			
16	Chicago Medical School				37	1	2						15							
17	Northwestern University Medical School Chicago	2	1	1	57	[illegible]		1				2	23	7	3	2	4	2		1
18	Stritch School of Medicine of Loyola University Chicago		3		20	1			1				7	2	3		2			1
19	University of Chicago The School of Medicine		8	1	31				1		1		8	5	2	2			1	4
20	University of Illinois College of Medicine Chicago	1	8	1	61	4	3				1	3	27	10	3		1			3
	INDIANA																			
21	Indiana Univ School of Medicine Bloomington Indianapolis		2		26	2	2		1		5		6			2	5	2		[illegible]
	IOWA																			
22	State University of Iowa College of Medicine Iowa City		2		16	2					1	2	4	3	3	2	1	2		[illegible]
	KANSAS																			
23	University of Kansas School of Medicine Lawrence Kansas City		1	1	24	1						2	2	3			1	1		4
	KENTUCKY																			
24	University of Louisville School of Medicine Louisville	3			17	1			1		4		3	8	2		1	3		[illegible]
	LOUISIANA																			
25	Louisiana State University School of Medicine New Orleans				3						1		2			1	2	2		1
26	Tulane University School of Medicine New Orleans	11	3	4	9	1			1		5	1	4	2			5	2		[illegible]
	MARYLAND																			
27	Johns Hopkins University School of Medicine Baltimore	1		1	14	4	1		3		3	1	4	1		3		3		[illegible]
28	University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore	1	2		12	1	1	1	1		1		2	2			2	1		3
	MASSACHUSETTS																			
29	Boston University School of Medicine				13		6		2				2				2			1
30	Harvard Medical School Boston	1	2	1	33		18		3		3	2	6	1		1	4		6	
31	Tufts University School of Medicine Boston		1		13	1	21	1	1		1		6				2		8	4
	MICHIGAN																			
32	University of Michigan Medical School Ann Arbor		3		30	[illegible]	2					3	4	6	6	3	2			[illegible]
33	Wayne State University College of Medicine Detroit		2		15						1		1				1	1		
	MINNESOTA																			
34	University of Minnesota Medical School Minneapolis		5		47	2	1				2	2	4		2	2	2	2		
	MISSOURI																			
35	St Louis University School of Medicine	1	2	1	34	3							9	9			1	2		1
36	Washington University School of Medicine St Louis	1	3		24	1	1				1		10	2	1	4	3	1		3
	NEBRASKA																			
37	Creighton University School of Medicine Omaha		1		11	6	1						1	1	2	3		1		
38	University of Nebraska College of Medicine Omaha		4	1	16	9					1		2	2	6	5	1	2		1
	NEW YORK																			
39	Albany Medical College				7	2	3		1				2			1	1		1	
40	University of Buffalo School of Medicine				27		6		2			1	3							1
41	Columbia University College of Physicians and Surgeons N Y	1	2		20	1	20	1	4				1	1		1			3	[illegible]
42	Cornell University Medical College New York		1		20	2	7		1		2	1	1	1		1				[illegible]
43	New York Medical College Flower and Fifth Avenue Hospitals				26		26		5			1	1			1		1	2	3
44	New York University College of Medicine		1		36	1	20		3		1		1			3	2			5
45	State University of New York College of Med New York City	1	2		26	2	24		1		1		6	1			2		1	4
46	University of Rochester School of Medicine and Dentistry	1			12	1	4				3				1		1			1
47	State University of New York College of Medicine Syracuse				9		8		2				2				3			3
	Marginal Numbers	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19

20 Massachusetts	21 Michigan	22 Minnesota	23 Mississippi	24 Missouri	25 Montana	26 Nebraska	27 Nevada	28 New Hampshire	29 New Jersey	30 New Mexico	31 New York	32 North Carolina	33 North Dakota	34 Ohio	35 Oklahoma	36 Oregon	37 Pennsylvania	38 Rhode Island	39 South Carolina	40 South Dakota	41 Tennessee	42 Texas	43 Utah	44 Vermont	45 Virginia	46 Washington	47 West Virginia	48 Wisconsin	49 Wyoming	50 Alaska Guam Hawaii Puerto Rico Canal Zone	51 Totals	Marginal Number
	1				2				1		1						1					1					1				16	1
	1	1	1	8	1	1					1	1		2			1		1	1	2	12				1					62	2
2	2	2	1	3	1	1	1			1	1	1		3	1	[illegible]	1		2	1	6	2	2			6	1		1	3	8[illegible]	3
1	2	2	1				1				1					2	1									1				1	21	4
	2	4	1		1				1		3												2			2		1		1	26	5
	2	2						1	1	1	3			1	1	1	1				1		2			1					29	6
																															2	7
	7	[illegible]		[illegible]	3	1	2			3	6			1		1							2					2	1		6[illegible]	8
4	3	2		2		1	1	[illegible]	1		[illegible]				1		3	2					1	2	1	4		2		1	113	9
9		1						1	10		1			1	1	1	[illegible]	3				1			11		2	1			[illegible]	10
4	2	6	1	1				1			[illegible]	1	1	[illegible]	1	1	[illegible]					3	5		10	1	4	3			[illegible]	11
1	3		2	1					[illegible]		10	[illegible]		[illegible]	1		[illegible]		1		2	1			4		1	1			91	12
																															0	13
2			1	2							1	1		3			1		1		[illegible]	2			2		1	1			4[illegible]	14
		1										[illegible]							7		[illegible]	[illegible]			[illegible]		1				[illegible]9	15
3				2					9		11			2		1	1									1		2			117	16
2	7	8	1	3	[illegible]	1	1		1	1	10	1	3	[illegible]	1	2	3	1			2	[illegible]	[illegible]			7	1	15	1		203	17
1	6	2			2				1	1	1			[illegible]				1	1			[illegible]	1			1		7	2	2	77	18
4	3	1		2	[illegible]						[illegible]			6	1	1	3				3	1			2	3	1	1		1	106	19
	9	2		4	1	[illegible]	[illegible]		1	[illegible]	1		2	3	2	3				1	[illegible]	7	1		1	[illegible]	1	8		1	[illegible]	20
2	6	1	3	[illegible]		[illegible]			[illegible]	1	[illegible]			11	2	1	[illegible]		1			6			3	4	1	1		2	110	21
1	11	4		7		4				1				[illegible]		1	1			1		1	1			7		6	1	1	[illegible]	22
	1	3	1	3	1	1								[illegible]	[illegible]		1				1	3			1	6	3		1		91	23
1	6	2		[illegible]		1			1	1		2			1		5				5	2			3		3	1			93	24
	2		3	1								1	[illegible]			1					1	8			2	1	1				[illegible]	25
2	1	3	16	3			1					1					1				8	14			1	1	1				[illegible]	26
6	[illegible]										[illegible]	[illegible]		10		2	[illegible]	1	2			4	1	1	1	1	1	1	1	1	[illegible]	27
4	2	1		1					1	1	7	[illegible]		3			4		1		2	3	1	1	3	1	6	2			[illegible]	28
35	4	1		1					1		11			[illegible]	1			1	2			1									[illegible]	29
77	11	[illegible]	1	3				8	[illegible]	1		1		1	4	2	6	2			2	3	2	1	3	7	3	3		1	[illegible]	30
63	2			2				[illegible]	2		[illegible]			[illegible]		1	3	[illegible]				2	1		2	3	1		1	1	[illegible]	31
	3	4			1	1	3		2		[illegible]	1		11	1	2	1		1			3	1		1	3	2	2		2	[illegible]	32
		1							1					2			[illegible]					1			1				1		30	33
	5	4				1	1		1	1	4	1	1		3	1		1			1	1			1	12		6			119	34
4	9	1			1				[illegible]		2			23		2	1			1		1				11		1	1		126	35
3	2	1		2		1			1		7	1		2	1	2	2		1	1	2	2			2	[illegible]	2	1	1	4	99	36
	1	7		1		6	1			2				4		2						1				4	1	3		1	[illegible]	37
1	7	9		6	6	1	1			1	3		1	1	1	[illegible]	1			1		[illegible]				13	3	1	2		119	38
3		1		1			1		5	1	28			2		1	3							1	1	1					67	39
1		3	1						3	1	[illegible]			7			4		1			2				1		1		2	122	40
8	3	[illegible]		3				3	19		69	1		7			6							1	1	2	1	1		2	194	41
8	3	2		2				1	14	1	39			3			8	1			1	2	1	4	2	3	2	1			137	42
7		3		1					26		65			4	1	1	3	2	1			3	1				1	2			187	43
9	2	2		1			1		25	1	123			1	1	1	6	1			1		1	1	5	1	1	1		1	259	44
5	2	3		1					19		104			4		1	5		1			2			1	2	2				223	45
4	5	3		2	2	1		1	1		29			6		1	3		1		1	1	1			3	1	3	2		95	46
4	1							2	3	1	56			2			1					1		1		1	1	2			103	47
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	

Marginal Number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Marginal Number		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland
	NORTH CAROLINA																			
48	University of North Carolina School of Medicine Chapel Hill											1								
49	Duke University School of Medicine Durham	2	1		5	1	1		1		2						1			4
50	Bowman Gray Sch of Med of Wake For Col Winston Salem	1			4	1	1		1					2						2
	OHIO																			
51	University of Cincinnati College of Medicine	2	2	1	30	1	5				1	1	1	3		1	9		1	2
52	Western Reserve University School of Medicine Cleveland		1		24	1	5		1				1	1	1		5			2
53	Ohio State University College of Medicine Columbus		1		26	3			1		1		2	3			3			1
	OKLAHOMA																			
54	University of Oklahoma School of Medicine Oklahoma City	1	1	4	9	5			1		1					8	2	1		
	OREGON																			
55	University of Oregon Medical School Portland		2		30	2	2					3	1					2		
	PENNSYLVANIA																			
56	Hahnemann Medical College and Hospital of Philadelphia		2		13	3	1		3		1		1				1	2		5
57	Jefferson Medical College of Philadelphia	1			15		3	2	1		1		3	4		2		2		1
58	Temple University School of Medicine Philadelphia	1	1		24		3		2		1		3	1			2		1	5
59	University of Pennsylvania School of Medicine Philadelphia		3		17	1	9				1		3	2		2	4		1	4
60	Woman's Medical College of Pennsylvania Philadelphia		1		3	1	4		2											3
61	University of Pittsburgh School of Medicine				9				3		1		3	2			2	2		1
	SOUTH CAROLINA																			
62	Medical College of South Carolina Charleston				3	1					5		1	2	1		2	4		3
	TENNESSEE																			
63	University of Tennessee College of Medicine Memphis	8		5	14	2					15	1	2	5		1	11	11	1	
64	Meharry Medical College Nashville	2		1	18	1			5		4		4	5		2	1			2
65	Vanderbilt University School of Medicine Nashville	8			5	1	2				3				1		6	3	1	1
	TEXAS																			
66	University of Texas Southwestern Medical School Dallas		1	1	7											1		2		
67	University of Texas Medical Branch Galveston				9	1						1	2	2		1	2	4		2
68	Baylor University College of Medicine Houston				10	2			1				3				1	2		1
	UTAH																			
69	University of Utah School of Medicine Salt Lake City		3		10		3					5	1					1		
	VERMONT																			
70	University of Vermont College of Medicine Burlington				9		8		3					1	1		1		2	1
	VIRGINIA																			
71	University of Virginia School of Medicine Charlottesville	1	2	2	3		4	1	2		2	1	1	1		1	4	2		1
72	Medical College of Virginia Richmond	1	1		9		4		3		3		2	2		1	2			1
	WASHINGTON																			
73	University of Washington School of Medicine Seattle				7	1												1		
	WISCONSIN																			
74	University of Wisconsin Medical School Madison			1	15	2							3	3	1		1			1
75	Marquette University School of Medicine Milwaukee		1	1	16	3	1		4			1	7	3		2	2	1		
	PUERTO RICO																			
76	University of Puerto Rico School of Medicine San Juan																1			
	CANADA																			
77	University of Alberta Faculty of Medicine Edmonton				1															
78	University of British Columbia Faculty of Med Vancouver				1															
79	University of Manitoba Faculty of Medicine Winnipeg				5								1		1					
80	Dalhousie University Faculty of Medicine Halifax																			
81	Queen's University Faculty of Medicine Kingston				1														1	
82	University of Ottawa Faculty of Medicine				1									1						
83	University of Western Ontario Faculty of Medicine London			1																
84	McGill University Faculty of Medicine Montreal		1		8		3				2		2	1				2	1	2
85	University of Toronto Faculty of Medicine				10				2		1				1				1	
86	University of Montreal Faculty of Medicine				1									1						
87	Laval University Faculty of Medicine Quebec						1								1					
	OTHERS																			
88	Foreign medical faculties		1				16		12		6			9	1		1		4	1
89	Extinct medical school	1			6			1			1	1					3			
90	Unapproved medical schools				2				1											
91	School of osteopathy					12								11						
92	Totals	67	87	31	1,255	112	29[illegible]	9	146	0	101	41	228	135	48	65	136	95	45	19[illegible]
	Marginal Number	1	2	3	4		6	7	8	9	10	11	12	13	14	15	16	17	18	19

West South Central 624, East South Central 469, and New England 407 The Mountain States added 175 and the territories and possessions 65

In the 22 years from 1935 to 1956, inclusive, there were 142,627 new additions to the medical profession as determined by the number who received their first license Figures for each year during this period are presented in table 13 Of the 142,627 in this group, 119,225 were licensed after written examination and 23,402 by endorsement of credentials The total number of licenses issued in the same period (table 3) was 252,156

20 Massachusetts	21 Michigan	22 Minnesota	23 Mississippi	24 Missouri	25 Montana	26 Nebraska	27 Nevada	28 New Hampshire	29 New Jersey	30 New Mexico	31 New York	32 North Carolina	33 North Dakota	34 Ohio	35 Oklahoma	36 Oregon	37 Pennsylvania	38 Rhode Island	39 South Carolina	40 South Dakota	41 Tennessee	42 Texas	43 Utah	44 Vermont	45 Virginia	46 Washington	47 West Virginia	48 Wisconsin	49 Wyoming	50 Alaska, Guam, Hawaii, Puerto Rico, Canal Zone	51 Totals	Marginal Number
									1		1																				3	48
3	2	2		2					[illegible]	1	6	1		1			2	1	[illegible]		1	1	1		5	1	1				60	49
									2		1	1		1					5		3						1	1			[illegible]	50
2	2		1	3						2	1	2				2	3				2	3			2	1	1		1		91	51
11	7	1		1		1			2		6	1		2		1	[illegible]	1			1	2				3	1	1			[illegible]	52
1	11	2	1	2			1			[illegible]	1	1				1	2					4				1	2				[illegible]	53
	1	2		1						2	1	2		5	2	[illegible]	1				1	11	1		4	1					[illegible]	54
1	1	1		1	1	1				1	1			1		16	1					1				[illegible]				1	103	55
2	3	2						1	23	1	12			9			6	1				2					2			1	99	56
6	7		1	2		1		[illegible]	18	1	11	1	1	11			7	1	1		1	3	2		4		3	1		1	176	57
2	2	1		2	2	1		1	10		18	[illegible]	1	7		2	11			1		3	2		4	3		2		4	131	58
5	4	[illegible]	2	1		1	1	1	[illegible]		[illegible]	2		[illegible]		1	[illegible]				1	6			3	2	6	1		2	150	59
1		1		1	1				3	1				1			[illegible]													2	32	60
3	1			1					[illegible]		1	1	1	7			[illegible]					1			3	[illegible]	3	2			60	61
1				1			1					[illegible]		[illegible]							3	2	1		1						40	62
	4	3	5	[illegible]					1	1		9		4	[illegible]	2	3				7	11			5	2					146	63
	3	1	3	2					4		11			12	1		[illegible]		1		2				2	1		2			[illegible]	64
	1	1	[illegible]	1					1		2	[illegible]		1			1		1		1	5			4	2	1	[illegible]			60	65
	1								1				1	1	3	1	2		1				1		1	2					[illegible]	66
1	3	4	1	3		1	1		1	4	2		1						1						1	2			1		51	67
1	4	5		3			1			[illegible]	4			2	3		1								1	2	2				51	68
2	1				2						1											2	5			1					3	69
8	3			2				2	4		11			2			2	2			2			8							[illegible]	70
										1	9	4	1		2	1	1				2	3			2	1	1		1		60	71
2	1	1					1			1	2	1	1	1	1		3		2		3	[illegible]			3	1	6				[illegible]	72
					1						1					1					1					14					[illegible]	73
	5	2	1	1							2			1	1		1					3			1	6		7		1	59	74
2	3	4							4		10		1	3			2		1		1					2	1	[illegible]	1		[illegible]	
																														4	[illegible]	[illegible]
																										3					4	77
																										1					[illegible]	78
	1	1																				1				2					12	79
1											1														1						3	80
											1																				3	81
																									1						3	82
	1	2	1						2					2														1			10	83
5	1	3				1			1		6			1								1		1	1	2	[illegible]	1			48	84
	2	1						1			3			4												2		1			[illegible]	85
											1																				3	86
								1																		1					4	
4	14			2				5	42	2	5	1		27				2		1	3	4		2		[illegible]		8		[illegible]	180	88
									1					3		1	1		1			2						2			24	89
	1			1				1	1		1											8						1			70	90
4								1	28		4			13		2						13						3			91	91
349	234	150	47	133	36	34	23	47	[illegible]	48	1 019	81	18	332	50	84	186	29	42	9	90	212	45	24	122	226	[illegible]	121	20	46	7 421	
20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	

Registration of Physicians, 1904-1956

A tabulation of total numbers of physicians registered for 53 years from 1904 to 1956, inclusive, is given in table 14. This study contains figures pertaining to the number of physicians examined and registered by written examination, the annual percentage of failures, the number registered annually by reciprocity or endorsement of credentials, and the total registered. The number of physicians registered annually from 1904 to 1933 shows slight fluctuation, except in 1918, when only 4,231 were licensed, the lowest registration in 53 years This decrease was due to a sudden withdrawal of physicians from civilian life in World War I After 1933 there was an upward trend, except during the years 1940 to 1943, inclusive The marked increase in 1943 was the result of the acceleration of the medical school curriculum and the efforts on the part of medical educators of the country to maintain a steady flow of physicians for both civilian and medical practice The greatest number of physicians registered in any year was in 1946 The licensure of medical officers by endorsement of credentials on their return from military service and the original licensure of physicians who had entered military service on completion of the internship accounts in large measure for the increase that almost doubled the registration of the previous year 1945

TABLE 11 —*Licentiates Representing Additions to the Medical Profession 1956*

	Examination	Reciprocity and Endorsement	Total
Alabama	88	3	91
Arizona	12	1	13
Arkansas	65	0	65
California	459	140	599
Colorado	101	11	112
Connecticut	34	42	76
Delaware	5	0	5
District of Columbia	9	42	51
Florida	140	0	140
Georgia	195	1	196
Idaho	3	1	4
Illinois	278	56	334
Indiana	174	2	176
Iowa	79	0	79
Kansas	119	2	121
Kentucky	96	6	102
Louisiana	209	0	209
Maine	38	14	52
Maryland	270	14	284
Massachusetts	19	169	188
Michigan	281	7	288
Minnesota	195	23	218
Mississippi	101	0	101
Missouri	240	12	252
Montana	5	4	9
Nebraska	118	0	118
Nevada	1	0	1
New Hampshire	11	8	19
New Jersey	51	59	110
New Mexico	3	2	5
New York	225	674	899
North Carolina	192	0	192
North Dakota	26	1	27
Ohio	488	34	522
Oklahoma	10	2	12
Oregon	40	11	51
Pennsylvania	503	20	523
Rhode Island	38	12	50
South Carolina	94	0	94
South Dakota	9	0	9
Tennessee	173	2	175
Texas	337	1	338
Utah	16	7	23
Vermont	14	8	22
Virginia	221	2	223
Washington	63	7	70
West Virginia	20	5	25
Wisconsin	113	4	117
Wyoming	7	1	8
Alaska	0	1	1
Canal Zone	0	2	2
Hawaii	7	8	15
Guam	0	0	0
Puerto Rico	40	7	47
Virgin Islands	0	0	0
Totals	6 035	1 428	7 463

TABLE 12 —*Licentiates Representing Additions to the Medical Profession Grouped in Geographical Divisions, 1956*

	Examination	Reciprocity and Endorsement	Total
New England			
Maine	38	14	52
New Hampshire	11	8	19
Vermont	14	8	22
Massachusetts	19	169	188
Rhode Island	38	12	50
Connecticut	34	42	76
Totals	154	253	407
Middle Atlantic			
New York	225	674	899
New Jersey	51	59	110
Pennsylvania	503	20	523
Total	779	753	1,532
East North Central			
Ohio	488	34	522
Indiana	174	2	176
Illinois	278	56	334
Michigan	281	7	288
Wisconsin	113	4	117
Totals	1 334	103	1 437
West North Central			
Minnesota	195	23	218
Iowa	79	0	79
Missouri	240	12	252
North Dakota	26	1	27
South Dakota	9	0	9
Nebraska	118	0	118
Kansas	119	2	121
Totals	786	38	824
South Atlantic			
Delaware	5	0	5
Maryland	270	14	284
District of Columbia	9	42	51
Virginia	221	2	223
West Virginia	20	5	25
North Carolina	192	0	192
South Carolina	94	0	94
Georgia	195	1	196
Florida	140	0	140
Total	1 146	64	1 210
East South Central			
Kentucky	96	6	102
Tennessee	173	2	175
Alabama	88	3	91
Mississippi	101	0	101
Totals	458	11	469
West South Central			
Arkansas	65	0	65
Louisiana	209	0	209
Oklahoma	10	2	12
Texas	337	1	338
Totals	621	3	624
Mountain			
Montana	5	4	9
Idaho	3	1	4
Wyoming	7	1	8
Colorado	101	11	112
New Mexico	3	2	5
Arizona	12	1	13
Utah	16	7	23
Nevada	1	0	1
Total	148	27	175
Pacific			
Washington	63	7	70
Oregon	40	11	51
California	459	140	599
Totals	562	158	720
Territories and Possessions			
Alaska Canal Zone Guam Hawaii Puerto Rico and Virgin Islands	47	18	65
Totals	6 035	1 428	7 463

In the years since 1946, the numbers registered decreased annually until 1952, although they far exceeded the prewar totals The last four years has shown an increase in the number of physicians registered The number registered in 1956 was slightly lower than in the previous year

The highest percentage of failures was 21 7 in 1908 Many of the medical schools at that time were proprietary institutions operating for financial returns rather than the improvement of the medical curriculum Beginning in 1915, the percentage of failures began to drop, reaching a low of 5 7 in 1930 Beginning in 1936, the percentage of failures began to rise, reaching another peak of 20 7 in 1940 This was the result of the increase in the number of foreign-trained physicians seeking licensure in the United States, many of whom are not successful after repeated attempts at licensure examinations While the percentage of failures has been reduced somewhat in recent years, it still reflects the unsuccessful attempts of foreign-trained physicians, graduates of unapproved medical schools, and schools of osteopathy to secure licenses The annual failure rate among graduates of approved medical schools is about 4% This table again refers to examinations given annually rather than to individuals examined A candidate who fails more than once in a state in a given year is counted as one failure but, should he again fail in a succeeding year, this fact is computed among the failures for that year Likewise, a successful candidate securing a license in more than one state in a given year is counted in both states and likewise is counted if he passed examinations in later years The figures in this table give only a fair approximation of the number of physicians added to the profession

TABLE 13 –*Licentiates Representing Additions to the Medical Profession, 1935-1956*

Year	Examination	Reciprocity and Endorsement	Total
1935	5 099	411	5 510
1936	5 548	629	6 177
1937	5 812	612	6 424
1938	5 759	501	6 260
1939	5 584	460	6 044
1940	5 432	455	5 887
1941	5 241	474	5 715
1942	5 560	454	6 014
1943	5 586	372	5 958
1944	6 495	470	6 695
1945	4 979	769	5 748
1946	5 362	1 608	6 970
1947	5 273	1 617	6 890
1948	4 942	1 694	6 636
1949	4 260	1 616	5 876
1950	4 609	1 393	6 002
1951	4 985	1 288	6 273
1952	5 168	1 717	6 885
1953	5,388	1 888	7 276
1954	5 897	2 020	7 917
1955	6 211	1 526	7 737
1956	6 035	1 428	7 463
Totals	119 225	23 402	142 627

Graduates of Approved Schools and Others Registered, 1922-1956

In table 15, the numbers of physicians registered since 1922 are grouped in two categories, namely, graduates of approved medical schools and others In the computation of these figures, schools rated in classes A and B prior to 1928 by the Council on Medical Education and Hospitals of the American Medical Association are included in the first grouping In 1928, the classification of A, B, and C by the Council was discontinued, and a list of approved medical schools has since been maintained In the columns headed "Others" are included graduates of foreign faculties of medicine, class C graduates, osteopaths given recognition by medical licensing boards, and graduates of schools not approved by the Council subsequent to 1928

TABLE 14 –*Registration of Physicians, 1904-1956*

Year	Examined	Passed	Failed %	Reciprocity or Endorsement	Total Registered
1904	7 056	5 693	19 3	1 005	6 698
1905	7 178	5 688	20 8	394	6 082
1906	8 040	6 373	20 7	1 502	7 875
1907	7 259	5 731	21 3	1 427	7 158
1908	7 775	6 089	21 7	1 284	7 373
1909	7 295	5,865	19 6	1 381	7 246
1910	7 011	5 719	18 4	1 640	7 359
1911	6 964	5 582	19 8	1 243	6 825
1912	6 880	5 467	20 5	1 273	6 740
1913	6 453	5 253	18 6	1 292	6 545
1914	5 579	4 379	21 5	1 439	5 818
1915	5 334	4 507	15 5	1 399	5 906
1916	4 878	4 151	14 9	1 353	5 504
1917	4 [illegible]4	4 085	14 0	1 360	5 445
1918	3 667	3 184	13 2	1 047	4 231
1919	4 750	4 074	14 2	2 546	6 620
1920	4 796	4 062	15 3	2 558	6 620
1921	4 825	4 228	12 4	2 186	6 414
1922	4 031	3 539	12 2	2 073	5 612
1923	4 727	4 028	14 8	2 405	6 432
1924	5 392	4 756	11 8	1 923	6 674
1925	6 002	5 450	9 2	1 861	7 311
1926	5 770	5 314	7 9	1 955	7 269
1927	5 389	5 002	7 2	2 176	7 178
1928	5 458	5 090	6 7	2 228	7 318
1929	5 629	5 282	6 2	2 420	7 702
1930	5 571	5 255	5 7	2 366	7 621
1931	5 611	5 265	6 2	2 211	7 476
1932	5 675	5 247	7 6	1 886	7 133
1933	5 673	5 244	7 6	1 989	7 233
1934	6 145	5 628	8 4	2 161	7 789
1935	6 443	5 859	9 1	2 194	8 053
1936	6 918	6 224	10 0	2 773	8 997
1937	7 334	6 604	10 0	3 205	9 809
1938	7 [illegible]61	6 [illegible]89	11 [illegible]	[illegible]	[illegible]
1939	7 [illegible]	6 433	10 3	[illegible]	9 305
1940	7 [illegible]	[illegible]	20 7	86[illegible]	9 1[illegible]7
1941	7 539	6 057	19 7	78[illegible]	8 819
1942	7 224	[illegible]	[illegible]	[illegible]	[illegible]
1943	8 103	[illegible]489	10 9	[illegible]	[illegible]
1944	[illegible]	[illegible] 011	11 8	[illegible]	8 [illegible]07
1945	[illegible]930	[illegible]343	[illegible]	[illegible]	[illegible]
1946	7 610	6 8[illegible]	9 9	[illegible]	[illegible]
1947	7 164	6 414	10 5	7 701	14 115
1948	6 624	5 904	10 8	[illegible]	13 [illegible]
1949	[illegible]	5 219	12 5	[illegible]	12 118
1950	[illegible] 203	5 481	11 [illegible]	[illegible]	12 236
1951	6 473	5 716	11 7	6 225	11 941
1952	7 028	6 229	11 3	7 016	13 245
1953	7 425	6 543	13 0	7 869	14 412
1954	8 066	7 033	12 7	8 202	15 235
1955	8 501	7 400	12 9	7 461	[illegible]
1956	8 342	7 179	13 9	7 421	14 600

In 1956 there were 14 600 candidates registered, of whom 13,146, or 90%, were graduates of approved schools and 1,454, or 10%, were in the second group In the 35 years recorded in this table, 345,308 candidates were registered, including 311,416 (90 1%) graduates of medical schools indicated as in the approved group, and 33,892 (9 9%) others

Graduates of Unapproved Medical Schools Registered, 1952 1956

Recorded in table 16 are data regarding graduates of institutions that have not been approved by the Council on Medical Education and Hospitals of the

American Medical Association Figures are given for those licensed after written examination and those licensed by endorsement of credentials The table also includes a column combining the figures for these two groups They represent graduates of five unapproved medical schools, all but one of which are now extinct The latter institution has obtained the status of an approved school There were 216 graduates of unapproved medical schools registered from 1952 to 1956, inclusive, 80 by examination and 136 by endorsement of credentials California, Florida, Massachusetts, New York, and Texas licensed the greatest number of graduates of unapproved medical schools

TABLE 15 –*Graduates of Approved Schools and Others Registered, 1922-1956*

	Graduates Approved Schools		Others		
Year	No	Percentage of Total	No	Percentage of Total	Totals
1922	4 519	80 5	1,093	19 5	5 612
1923	5 196	80 8	1 237	19 2	6 433
1924	5 687	85 1	992	14 9	6 679
1925	6 314	86 4	997	13 6	7 311
1926	6 441	88 7	828	11 3	7 269
1927	6 410	89 4	768	10 6	7 178
1928	6 585	90 1	733	9 9	7 318
1929	7 003	91 0	699	9 0	7 702
1930	7 011	92 1	610	7 9	7 621
1931	6 932	92 8	544	7 2	7 476
1932	6 676	92 1	457	6 3	7 133
1933	6 774	93 7	459	6 3	7 233
1934	7 172	92 1	617	7 9	7 789
1935	7 360	91 3	693	8 5	8 053
1936	7 934	88 1	1 063	11 8	8 997
1937	8 391	85 5	1 418	14 4	9 809
1938	8 315	87 1	1 230	12 9	9 545
1939	8 067	86 2	1,298	13 8	9 365
1940	7 781	85 0	1 376	15 0	9 157
1941	7 770	87 9	1 049	11 9	8 819
1942	7 290	84 9	1 299	15 1	8 589
1943	8 640	87 9	1 189	12 2	9 829
1944	7 737	89 8	870	10 1	8 607
1945	8 233	91 8	732	8 1	8 965
1946	15 692	94 9	835	5 1	16 527
1947	13 097	93 0	1 018	7 0	14 115
1948	12 791	94 8	708	5 2	13 499
1949	11 378	93 7	770	6 3	12 148
1950	11 502	94 0	734	6 0	12 236
1951	11 027	92 3	914	7 7	11 941
1952	12 198	92 1	1 047	7 9	13 245
1953	13 189	91 5	1 223	8 5	14 412
1954	13 814	90 7	1 421	9 3	15 235
1955	13 344	89 8	1 517	10 2	14 861
1956	13 146	90 0	1 454	10 0	14 600
Totals	311 410	90 1	33 892	9 9	345 308

Twenty-seven boards were represented in the five year period In 1956, there were 29 licensed by 10 boards, 9 by examination, and 20 by reciprocity or endorsement As can be noted, the numbers licensed are steadily decreasing

Graduates of Schools of Osteopathy Registered by Medical Examining Boards, 1952-1956

The number of graduates of schools of osteopathy granted the privilege of practicing medicine or surgery or both by 17 licensing boards from 1952 to 1956, inclusive, is given in table 17 There have been 1,296 such persons registered, 903 by examination and 393 without written examination In 1956, 12 boards licensed osteopathic physicians to practice Two boards admitted these graduates after examination and three by reciprocity, while seven boards licensed them after both methods Following is a summary of the actions and regulations of the 17 boards providing for the licensing of osteopaths by the medical examining board

In Colorado an osteopath receives a license to practice medicine In Connecticut any registered osteopath may obtain the right to practice medicine or surgery, or both, according to the type of examination taken Osteopaths in Delaware may be licensed as osteopathic physicians after successfully passing an examination in selected subjects The District of Columbia will permit any person engaged in the practice of osteopathy on or before Jan 1, 1928, to file application for a license to practice osteopathy and surgery Since 1952, in Illinois, graduates of the Chicago College of Osteopathy are examined and may receive medical licenses Under an amendment to the medical practice act in 1945, osteopaths in Indiana are permitted to practice medicine and surgery Persons who were licensed in osteopathy before 1945 are authorized to practice osteopathy, surgery, and obstetrics

In Massachusetts, for the purposes of registration, the D O degree is considered equivalent to the M D degree In New Hampshire, under the provisions of the medical practice act, osteopaths are granted the right to practice medicine and surgery The New Jersey medical practice act provides that an osteopath licensed prior to Nov 1, 1941, who has served for a period of two years as an intern or resident surgeon in an approved osteopathic or medical hospital, or has completed a postgraduate course of two years in a college of osteopathy or medicine approved by the board, or has had at least three years of practice in a hospital approved by the board, can be admitted to an examination in pharmacology, therapeutics, and surgery If successful, he can obtain a license to practice medicine and surgery

In New York, a law approved April 10, 1946, provides that any osteopathic licentiate who had obtained the additional right to use instruments for minor surgical procedures and to use anesthetics, antiseptices, narcotics and biological products, or any applicant who had met or would meet all the preliminary and professional requirements as of Sept 1, 1936, and has satisfactorily passed or would pass the regular licensing examination would be granted the right to practice medicine without limitation

The Ohio Medical Practice Act was amended in 1943 to provide that all graduates from osteopathic schools applying for the right to practice in the state must meet certain educational requirements and must pass certain examinations One of the required examinations is in surgery Those who qualify and pass all of the examination are then given a license to practice osteopathic medicine and surgery Those in practice and licensed under a more limited law in effect prior to 1943 can secure a license to practice osteopathic medicine and surgery by meeting certain additional requirements, including postgraduate work and the passing of several additional examinations

In Oregon, osteopaths who meet certain requirements are granted the right to practice in the subjects covered by the medical examination In South Dakota, osteopaths may be licensed to practice medicine, surgery, and obstetrics This is an unrestricted license Texas issues only one license, which is unrestricted in scope In Virginia osteopaths may obtain the right to use drugs and to perform surgery with instruments state may apply to take the same examination as physicians If successful, they will be granted licenses to practice medicine and surgery In Wyoming, the statutes contain no specific provision for the licensing of osteopaths The medical practice act provides that the certificate issued to all applicants shall be deemed a license to practice medicine in all branches in which the applicant has taken an examination

TABLE 16 –*Graduates of Unapproved Medical Schools Registered, 1952-1956*

	Examination						Reciprocity and Endorsement						
	1952	1953	1954	1955	1956	Totals	1952	1953	1954	1955	1956	Totals	Combined Totals
Arizona									1			1	1
California								8	19	15	2	44	44
Connecticut							1					1	1
Delaware										1		1	1
District of Columbia											1	1	1
Florida	7	5	8	7	4	31							31
Georgia		1	2			3	1	1				2	5
Idaho								1				1	1
Illinois									2	4		6	6
Iowa									1	1		2	2
Maine				1		1	1			1		2	3
Massachusetts	5	2	5	1		13							13
Michigan							1		1		1	3	3
Missouri							1	2	1		1	5	5
Nevada							2					2	2
New Hampshire											1	1	1
New Jersey		3	1			4					4	4	8
New York	1	3	3	1	5	13	1				1	2	15
Ohio				3		3		1	3			4	7
South Dakota				1		1							1
Pennsylvania	2					2	1	1		1		3	5
Tennessee								1				1	1
Texas							18	9	7	3	8	45	45
Virginia		2				2							2
West Virginia	1	3				4							4
Wisconsin							2			1	1	4	4
Territories and possessions		1	2			3			1			1	4
Totals	16	20	21	14	9	80	29	24	36	27	20	136	216

TABLE 17 –*Graduates of Schools of Osteopathy Registered by Medical Boards, 1952-1956*

	Examination						Reciprocity and Endorsement						
	1952	1953	1954	1955	1956	Totals	1952	1953	1954	1955	1956	Totals	Combined Totals
Colorado	5	8	3	7	1	24	3	15	22	16	12	68	92
Connecticut	1	2	3			6							6
Delaware		1		2	3	6	2	4	1	2		9	15
District of Columbia									1	1		2	2
Illinois				14	10	24					11	11	35
Indiana	7	5	2	6	2	22	9	10	11	9		39	61
Massachusetts			1			1	6	1	2	5	4	18	19
New Hampshire							1	3	1	3	1	9	9
New Jersey	11	11	7	8	6	43	15	10	18	7	28	78	121
New York	36	47	44	92	42	261	5	4	1	1	4	15	276
Ohio	47	64	81	73	63	328	7	20	13	2	13	55	383
Oregon							1	1			2	4	4
South Dakota			1			1							1
Texas	41	32	46	25	9	153	21	16	13	10	13	73	226
Virginia							1	1	1			3	3
Wisconsin	8	7	7	6	6	34	2		1	1	3	7	41
Wyoming							1			1		2	2
Totals	156	177	195	233	142	903	74	85	85	58	91	393	1296

The Wisconsin law, amended in 1950, provides that an osteopath licensed in the state may obtain a license to practice medicine and surgery by completing a refresher course in materia medica and pharmacology consisting of not less than 64 hours of lecture and 60 hours of laboratory work and by passing an examination in these subjects Osteopaths not licensed in the

Preprofessional Training Requirements of Licensing Boards

In order to provide an opportunity for medical students to gain a broad educational background, the Council on Medical Education and Hospitals of the American Medical Association recommends four years of preprofessional college training Since January, 1953, the minimum requirement for admission to an approved medical school has been three years of college work, with the provision that rarely and only under exceptional circumstances will an approved medical school be justified in admitting a superior student with only two years of college preparatory work

TABLE 18 —*Professional Educational Requirements of Medical Licensing Boards*

	Length of Medical School Academic Year				Total Time Spent in Medical School Registration to Graduation			
	Weeks	Months	Same as A A M C C M E H*	Not Specified By Board	Weeks Annual	Months Annual	Years	Same as A A M C C M E H*
Alabama		9					4	
Arizona			x					x
Arkansas		9					4	
California		9					4	
Colorado				x			4	
Connecticut	32						4	
Delaware				x			4	
District of Columbia		9				36	4	
Florida			x					x
Georgia		9					4	
Idaho				x			4	
Illinois		9				40	4	
Indiana		8				42		
Iowa				x			4	
Kansas		9					4	
Kentucky		9					4	
Louisiana			x				4	x
Maine	36						4	
Maryland			x				4	x
Massachusetts		9					4	
Michigan	32					36		
Minnesota	36						4	
Mississippi	32						4	
Missouri	32						4	
Montana		9					4	
Nebraska		8					4	
Nevada		9					4	
New Hampshire		9					4	
New Jersey		8					4	
New Mexico				x				x
New York		9						
North Carolina				x			4	
North Dakota		8					4	
Ohio		9					4	
Oklahoma				x				
Oregon		8				32		
Pennsylvania	32						4	
Rhode Island				x				
South Carolina			x					x
South Dakota				x				x
Tennessee	36						4	
Texas		8					4	
Utah		9					4	
Vermont†							4	
Virginia		8					4	
Washington							4	x
West Virginia				x			4	
Wisconsin			x				4	x
Wyoming			x				4	
Alaska			x					x
Canal Zone		9					4	
Guam		9					4	
Hawaii				x				x
Puerto Rico		10					4	
Virgin Islands				x			4	

* Association of American Medical Colleges and Council on Medical Education and Hospitals of the American Medical Association
x Implies yes
† 900 hours

The preprofessional requirements of medical licensing boards are indicated in table 18 Seven boards specify that no preprofessional requirement is mentioned in the medical practice act Twelve boards reported a three-year requirement In others, the law specifies at least two years of college work No board specifies in detail the number of hours that must be devoted to the subjects of the premedical curriculum, although seven boards report that this training must include certain subjects, such as English, physics, chemistry, biology, and a foreign language The candidates appearing for medical licensure are graduates of all years, and the seeming lack of conformity with accepted standards as promulgated by the Council on Medical Education and Hospitals of the American Medical Association and the Association of American Medical Colleges is due to the fact that initiation of the three-year minimum requirement for all candidates appearing for licensure would eliminate many graduates of earlier years In practice, the boards in granting licensure to a graduate of an approved medical school accept the premedical training required in the year the candidate was admitted to medical school

Professional Educational Requirements of Licensing Boards

The medical practice acts or board regulations of several state medical licensing boards specify the length of the medical school course In other states, the law or ruling specifies that the professional educational requirements included in the standards for approval of the Council on Medical Education and Hospitals of the American Medical Association or for membership in the Association of American Medical Colleges, or both, is the regulation for licensure Table 19 outlines the requirement of each licensing board The table does not record the internship that is a requirement for licensure in some states

TABLE 19 —*Requirements of Premedical Training by Medical Licensing Boards*

Two Years or More of College

Alabama[1]
Arizona
Arkansas
California[3]
Colorado[1]
Connecticut[4]
Delaware[5]
Florida[6]
Georgia
Idaho
Illinois
Indiana[7]
Iowa[1]
Kansas
Kentucky
Louisiana[8]
Maine
Maryland[3]
Massachusetts[7]
Michigan[6]
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada[6]
New Hampshire
New Jersey[2]
New Mexico[1]
New York[8]
North Carolina[8]
North Dakota
Ohio
Oklahoma[1]
Oregon
Pennsylvania
Rhode Island
South Carolina[4]
South Dakota[4]
Tennessee
Texas
Utah[6]
Vermont[6]
Virginia
Washington[1]
West Virginia
Wisconsin[6]
Wyoming[1]
Alaska[2]
Canal Zone
Guam
Hawaii
Puerto Rico
Virgin Islands[8]

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[1] Not specified by law
[2] Entrance requirement prescribed by accrediting agencies
[3] Three years for applicants matriculating after Jan 1 1954
[4] One year prior to 1919 two years subsequent to 1917 including courses in physics chemistry and biology
[5] Premedical training must include courses in physics chemistry biology English and a foreign language
[6] Three year college requirement
[7] For all applicants courses in physics chemistry and biology must be included in premedical training
[8] Premedical training must include courses in English physics chemistry and biology

Approval of Medical Schools

Seven licensing boards maintain their own list of approved medical schools in the United States and Canada Twenty boards require applicants for licen sure from medical schools in the United States and Canada to be graduates of medical schools approved by the Council on Medical Education and Hospitals of the American Medical Association One board requires that the medical school be a member of the Association of American Medical Colleges Twenty-six boards require that the schools be approved by the Council and be members of the Association of American Medical Colleges In the majority of instances the requirement is specified in the medical practice act or a formal regulation of the board In actuality, all approved medical schools are both approved by the Council and members of the Association of American Medical Colleges

Required Internships

There is currently no medical school in the United States which requires that the student serve an internship as a prerequisite to graduation Duke University School of Medicine specifies the internship requirement but does not withhold the degree until the internship is completed The degree is issued at the end of the four-year medical course, but the school obtains from each student a signed agreement that he will spend two years in training in a hospital or laboratory before entering practice

TABLE 20 —*Medical Licensing Boards Requiring a One Year Internship**

Alabama
Arizona
California
Colorado
Delaware†
District of Columbia
Idaho
Illinois†
Iowa
Kentucky
Maine
Michigan†
Nevada
New Hampshire
New Jersey
North Dakota
Oklahoma
Oregon
Pennsylvania†
Rhode Island†
South Carolina
South Dakota
Utah
Vermont
Washington†
West Virginia
Wisconsin
Wyoming†
Alaska‡
Canal Zone
Hawaii
Puerto Rico†
Virgin Islands†

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* Some states require the internship for graduates of medical faculties abroad and from reciprocity or endorsement applicants

† Internship must be a rotating service

* One-year rotating service or two years of straight internship or two year residency in a specialty

‡ Unless in active practice for four years

One year of internship, as a prerequisite to licensure, is required by the licensing boards of 27 states, the District of Columbia, Alaska, Canal Zone, Hawaii, Puerto Rico, and the Virgin Islands South Carolina reported the institution of this requirement in the past year Nine boards specify that the internship must be a rotating service Oklahoma, Vermont, and Hawaii reported that a one-year general rotating internship or two years of straight internship or two year residency in a specialty will meet the board's internship requirement Alaska will accept active practice for four years in lieu of the internship requirement Those licensing boards that require an internship for licensure are listed in table 20

Temporary and Educational Permits, Limited and Temporary Licenses, or Other Certificates Issued by State Licensing Boards

Thirty-three boards provide for the issuance of temporary and educational permits, limited and temporary licenses, or other certificates The terms for the issuance of such certificates vary This limited registration may apply to hospital training, to those ineligible for licensure who seek further educational training, or for regular practice until the next regular session of the licensing board A list of these states and information on the length of validity of this special registration are shown in table 21

TABLE 21 —*Temporary and Educational Permits Limited and Temporary Licenses, or Other Certificates Issued by State Licensing Boards*

Arizona	Temporary permits issued on basis of community emergency and subject to qualifying for regular license A regular license limited to full time practice in federal and state hospitals or institutions or federal state county or municipal public health departments exempt only in basic science certification is also issued
Arkansas	Temporary permit until regular board meeting
Connecticut	Educational permit issued for extension of education of graduates of unapproved foreign medical schools
Delaware	Temporary emergency license upon proven emergency one year subject to renewal
Georgia	Permit until board meets Institutional permits for one year
Idaho	To candidates holding certificate of National Board of Medical Examiners or licensed by written examination in another state until next meeting of board
Illinois	Temporary certificates for residency training for applicants who are not qualified for permanent registration
Indiana	Temporary license pending next examination for graduates of approved medical schools Temporary reciprocal license for six months
Iowa	Resident license valid in hospital approved by board for one year and may be renewed for additional three years
Kansas	Temporary permit until next board meeting Fellowships restricted to state institutions and state hospitals Doctor holding fellowship works under direction of the head of the institution
Kentucky	Temporary permits issued to applicants by endorsement and serve until investigations completed and meeting of board Limited licenses are for special place purpose and time
Louisiana	Temporary permit is granted to physicians possessing the necessary credentials who file application for examination or reciprocity and who locate in Louisiana in between the regular semiannual examination meetings of the board Temporary permit valid until next meeting of the board
Maine	Temporary licenses granted for residency training for one year and to camp physicians for ten weeks
Michigan	Temporary license for training program
Mississippi	Temporary permit for practice until next board meeting
Nevada	Temporary permit for one year for residency training within a specific hospital in Nevada
New Hampshire	Temporary license for five years to foreign physicians Permanent license issued upon becoming citizen of the United States
New Jersey	Temporary license for noncitizens Permanent license in six years may be extended an additional two years
New Mexico	Temporary permit for practice until next board meeting Special permit confined to institutional practice
New York	Temporary certificate for residency training for those eligible for examination in hospitals other than state and municipal institutions
North Carolina	Limited license issued for duration of residency
North Dakota	Temporary permit until next board examination
Oklahoma	Temporary licenses for residency training in approved hospitals
Pennsylvania	Postgraduate certificate issued for residency training
South Dakota	Temporary license issued for graduates of foreign Medical schools
Texas	Temporary permit issued until next board meeting
Virginia	Temporary permit issued until next board meeting and for service as a hospital resident
West Virginia	Temporary permits issued until next board meeting to qualified applicants and for practice within specified area until physician has an opportunity to appear before the board regarding permanent licensure
Wisconsin	Temporary permit for graduates of foreign medical schools not recognized by board for licensure
Alaska	Temporary permits issued while processing permanent licensure to summer cannery physicians and to physicians in the armed forces on short tours of duty valid for six months renewable an additional six months
Guam	Restrictive certificate to permit medical employees of federal contractors to practice in the discharge of their official duties
Puerto Rico	Provisional license to foreign graduates for one year Permit ceases on June 30 1957
Virgin Islands	Temporary certificates issued to military service personnel on duty and to municipal personnel until next license examination

Licensure Requirements for Interns and Residents in Hospitals

In general, physicians serving internships are not required to be licensed in the state in which the hospital where they are interning is located Wyoming and Puerto Rico have such a requirement New Jersey permits a service of two years without licensure and Florida a three-year service before licensure Other states have a requirement of registration with the licensing board or a stipulation that the physician must be eligible for licensure The states which require some form of registration for interns are listed in table 22

TABLE 22 —*Licensure Registration, or Other Requirements for Interns*

Licensure	Other Requirements
Wyoming	Colorado[1]
Puerto Rico	Florida
	Indiana
	Massachusetts[3]
	New Jersey[4]
	New Mexico[5]
	South Carolina[6]
	Texas[5]
	Virginia[7]
	West Virginia

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[1] Registration with licensing board required annually not to exceed four years
[2] Must register every six months with state board of health and may serve for three years without licensure
[3] Limited registration for one year renewable annually for a period not to exceed five years
[4] May serve for two years without licensure
[5] Registration with licensing board required
[6] Must be eligible for licensure
[7] Graduates of foreign medical schools required to obtain permission from licensing board

TABLE 23 —*Licensure Registration, or Other Requirements for Residents*

Licensure or Temporary Registration Required	Other Requirements
Arkansas	Colorado[2]
California[1]	Delaware[4]
Connecticut[3]	District of Columbia
Idaho	Florida[6]
Illinois	New Jersey[13]
Indiana	Virginia[16]
Iowa[8]	West Virginia[18]
Louisiana	
Maine[9]	
Massachusetts[10]	
Michigan[11]	
Minnesota	
Mississippi	
Nevada[1]	
New York[14]	
North Carolina[15]	
Ohio[16]	
Oklahoma[11]	
Pennsylvania[1]	
South Carolina	
South Dakota	
Texas	
Virginia[19]	
Wisconsin	
Wyoming	
Puerto Rico	

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[1] May serve one year without licensure
[2] Four years without licensure Required to register with board
[3] May be required by hospitals
[4] Registration with licensing board required
[5] Hospital must notify licensing board
[6] Three years without licensure Hospital required to register resident every six months
[7] Limited license for employment as residents in hospitals maintained by state Temporary certificate for residency or specialty training for non citizens in approved hospitals in United States
[8] Resident's license issued for one year and may be renewed for an additional three years
[9] Temporary license granted for one year
[10] Limited registration granted.
[11] Temporary license
[12] Temporary permit for one year
[13] May serve two years without licensure
[14] Temporary certificates for residents in approved hospitals to those eligible for licensure in hospitals other than state and municipal institutions
[15] Limited license issued
[16] If unlicensed must work under supervision and not permitted to prescribe narcotics sign legal documents or perform major surgery
[17] Postgraduate certificate issued for residency training
[18] Graduates of foreign medical schools required to obtain permission from licensing board
[19] Temporary permit for service as a resident Graduates of foreign medical schools required to obtain permission from licensing board

TABLE 24 —*Schedule of Written Examination Dates and Issuance of Licenses by Reciprocity or Endorsement of Credentials*

	Written Examinations Held	License by Reciprocity or Endorsement Issued
Alabama	Annually	Continuously
Arizona	Quarterly	Quarterly
Arkansas	Twice annually	Twice annually
California	Quarterly	Continuously
Colorado	Twice annually	January April July and October
Connecticut	March July and November	Continuously
Delaware	Semiannually	Semiannually
District of Columbia	Twice annually	Quarterly
Florida	Twice annually	No reciprocity
Georgia	June and October	June and October
Idaho	Twice annually	Twice annually
Illinois	Quarterly	Quarterly
Indiana	Annually June	Approximately eight times annually
Iowa	Twice annually	Once monthly
Kansas	June and December	June and December
Kentucky	Semiannually	Every two months
Louisiana	June and December	June and December
Maine	March July and November	March July and November
Maryland	Twice annually	Monthly
Massachusetts	January and July	Once a month
Michigan	June and October	Continuously
Minnesota	January April June and October	February May July and November
Mississippi	Annually in June	Twice annually
Missouri	Three annually	Six to eight times annually
Montana	Semiannually	Semiannually
Nebraska	Annually	Continuously
Nevada	Quarterly	Quarterly
New Hampshire	Twice annually	Twice annually
New Jersey	June and October	Monthly except August
New Mexico	Twice annually	Twice annually
New York	June and December	Continuously
North Carolina	Annually	Five times annually
North Dakota	January and July	January and July
Ohio	June and December	January April June July October and December
Oklahoma	Annually	Quarterly
Oregon	January and July	Quarterly
Pennsylvania	January and July	Monthly
Rhode Island	Quarterly	Four to eight times annually
South Carolina	Twice annually	Five times annually
South Dakota	Twice annually	Continuously
Tennessee	Quarterly	Continuously
Texas	Twice annually	Quarterly
Utah	Once annually	February June August and November
Vermont	Twice annually	Continuously
Virginia	Twice annually	Twice annually
Washington	Twice annually	Twice annually
West Virginia	January and July	Quarterly
Wisconsin	Twice annually	Quarterly
Wyoming	Three annually	Three annually
Alaska	On application	On application
Canal Zone	On application	On application
Guam	On application	On application
Hawaii	January and July	Continuously
Puerto Rico	Twice annually	Continuously
Virgin Islands	Twice annually	Twice annually

Thirty-three boards require that physicians serving as interns in hospitals must be licensed or registered in the state Twenty-six boards stipulate that registration must be in the form of a regular license or a temporary certificate for the term of the residency Seven boards do not require licensure but stipulate some form of registration with the licensing board The regulations of each of the licensing boards that exact some requirement of those engaged in residency training are given in table 23

TABLE 25 —*Medical Licensure Fees*

	Examination	Reciprocity or Endorsement
Alabama	$ 10	$ 50
Arizona	25	100
Arkansas	50	100
California	25	100
Colorado	25	50
Connecticut	35	75[a]
Delaware	25	100
District of Columbia	25	50[b]
Florida	50	
Georgia	20	50
Idaho	25	100
Illinois	15	25
Indiana	25	100
Iowa	25	50
Kansas	35	50
Kentucky	50	75
Louisiana	25	50
Maine	27	52
Maryland	35	50
Massachusetts	25	50
Michigan	50	100
Minnesota	25	100
Mississippi	10	50
Missouri	25	100
Montana	50	75
Nebraska	25	50
Nevada	100	200
New Hampshire	30	50
New Jersey	50	100
New Mexico	50	50
New York	40	40
North Carolina	50	100
North Dakota	25	50
Ohio	25	50
Oklahoma	25	100
Oregon	25	100
Pennsylvania	25	50
Rhode Island	30	30
South Carolina	25	100
South Dakota	20	50
Tennessee	35	50[c]
Texas	50	100
Utah	25	50
Vermont	20	50
Virginia	25	100
Washington	25	25
West Virginia	25	100
Wisconsin	50	100
Wyoming	25	50
Alaska	25	100
Canal Zone	10	5
Guam	50	50
Hawaii	25	25
Puerto Rico	30	30
Virgin Islands	65	

[a] Endorsement of certificate of National Board of Medical Examiners $35

[b] Endorsement of certificate of National Board of Medical Examiners $25

[c] Endorsement of certificate of National Board of Medical Examiners $10

Schedule of Written Examination Dates and Reciprocity Meetings

The schedule of dates for written examination and meetings or oral examination for the issuance of licenses by reciprocity or by endorsement of credentials is given in table 24 In most instances written examinations are scheduled twice annually and reciprocity meetings quarterly or as soon as the application for licensure can be processed In those states requiring a basic science certificate for licensure, dates of the examination or reciprocity meetings are arranged to coincide closely with the examination and meeting dates of the boards of examiners in the basic sciences A few states issue temporary permits enabling physicians to begin the practice of medicine until the board examination or meeting is held

Medical License Fees

Table 25 lists for each state, territory, and outlying possession the fee charged by the medical licensing board for registration by examination and also by reciprocity or endorsement of credentials The examination fee tends to be uniform, the majority of the boards charging a fee of $25 The fee for a license without examination varies from $20 to $200 Three states have a lower fee for those being certified on the basis of the certificate of the National Board of Medical Examiners than candidates licensed by endorsement of state licenses

TABLE 26 —*States Requiring Annual Registration*

State	Fee	State	Fee	State	Fee
Arizona	$ 5	Minnesota	$ 3	Tennessee	5
Arkansas	a	Missouri*	5	Texas	5
California	1	Montana	5	Utah	3
Colorado	b	Nebraska	2	Vermont	2
Connecticut	2	Nevada	5	Virginia	1
Dist of Columbia	4	New Mexico	e	Washington	7
Florida	1c	New York*	6	West Virginia*	2
Georgia	3	North Dakota	f	Wisconsin	3
Idaho	10	Oklahoma	3	Wyoming	2
Indiana	d	Oregon	g	Alaska	10
Iowa	3	Pennsylvania	1	Guam	None
Kansas	3	Rhode Island	1	Hawaii	2
Louisiana	10	South Dakota	2	Virgin Islands	50

* Biennial registration

a Residents $2 nonresidents $4
b Residents $2 nonresidents $10
c Required by State Board of Health
d Residents $5 nonresidents $10
e Residents $2 nonresidents $5
f Residents $5 nonresidents $2
g Residents $10 nonresidents $5

Licensure on Government Credentials

Few states have provision in their medical practice acts for the acceptance of credentials issued by the federal government as a basis for licensure without examination Ten boards—Alabama, California, Delaware, Illinois, Pennsylvania, Texas, Utah, Vermont, Virginia, and Wisconsin—have indicated that in their discretion they may accept such credentials under varying regulations

Annual Registration

Thirty-nine boards require physicians to register their licenses annually or biennially This requirement applies in some states whether or not the physician is engaged in practice in the state In table 26 are listed the licensing boards that exact this requirement and the fee charged for such registration The fee charged

TABLE 27—STATUS OF REQUIREMENTS FOR MEDICAL LICENSURE FOR PHYSICIANS TRAINED IN FOREIGN COUNTRIES OTHER THAN CANADA*

	Written Examination Required	Admitted Also on Reciprocal Basis	Citizenship	Basic Science Certificate	Internship in United States	Recognition Limited to Graduates of Schools Accepted by A M A and A A M C	Additional Requirements	Exemptions	Examination Fee Dollars
Alabama	x		x		x		x		10
Arizona	x		1st P	x	x	x		x	25
Arkansas	Not accepted								
California	x		x		x		x	x	25
Colorado	x		x	x	x	x	x		25
Connecticut	x		1st P	x					35
Delaware	x		x		x	x	x		25
Dist of Columbia	x	x		x	x	x		x	25
Florida	x		x	x		x			50
Georgia	x	x	x			x			20
Idaho	Not accepted								
Illinois	x	x	1st P		x		x		15
Indiana	x						x		25
Iowa	x		1st P	x	x	x	x		25
Kansas	x	x	x		x			x	35
Kentucky	x		x		x		x		50
Louisiana	Not accepted								
Maine	x		x		x				27
Maryland	x		1st P		x			x	25
Massachusetts	x		1st P					x	25
Michigan	x		x	x	x		x		50
Minnesota	x		1st P	x	x	x	x		25
Mississippi	x		x			x			10
Missouri	x		x		x				25
Montana	Not accepted								
Nebraska	x		x	x		x			25
Nevada	Not accepted								
New Hampshire	x	x	x		x			x	30
New Jersey	x	x	x		x		x	x	50
New Mexico	x		1st P	x		x			50
New York	x		1st P				x		40
North Carolina	x		x			x		x	50
North Dakota	x		1st P		x			x	25
Ohio	x		x					x	25
Oklahoma	x			x	x	x			25
Oregon	Not accepted								
Pennsylvania	x		1st P		x	x		x	25
Rhode Island	x	x	1st P	x	x		x	x	20
South Carolina	Not accepted								
South Dakota	x		1st P	x	x		x		20
Tennessee	x		x	x		x			35
Texas	x			x					50
Utah	Not accepted								
Vermont	Not accepted								
Virginia	x				x		x	x	25
Washington	x			x		x			25
West Virginia	x		x		x		x		25
Wisconsin	x	x	1st P	x	x	x	x		50
Wyoming	Not accepted								
Alaska	x	x	x	x		x			25
Canal Zone	Not accepted								
Guam	x	x			x	x			30
Hawaii	x		1st P		x	x		x	25
Puerto Rico	Not accepted								
Virgin Islands	x				x	x	x		65

This summary should be supplemented by direct communication with the secretary of the licensing board of the state in which the physician is interested

x Implies yes

* Graduates of medical schools of Canada considered for licensure on the same basis as graduates of approved medical schools in the United States provided they comply with regulations pertaining to citizenship and internship

Additional Requirements

Alabama Candidate is eligible if he is certified by the National Board of Medical Examiners and approved

California Two year internship in an approved hospital in the United States one of said years being in California The foreign graduate must also pass the regular written examination given by the board prior to being eligible to intern in an approved hospital in California and pass an oral and clinical examination before a certificate may be issued

Colorado Accepted on basis of written examination only Credentials must be submitted in original form and accompanied by translation and will be directly verified or documents should bear evidence of being visaed by the U S Consul in the country wherein the school of graduation is or was *located*

Delaware Residence for one year required Completion of senior year in approved medical school in the United States

Illinois Approved rotating internship in United States required Limited license issued for practice in hospitals maintained by the state

Indiana Graduation from medical school approved by Indiana board plus repetition of senior year in approved medical school in United States or two years post graduate work in approved hospital in the United States Postgraduate work must be obtained in states other than Indiana

Iowa Internship or one year in medical school in the United States

Kentucky Applicant required to complete at least five years training in the United States in an institution approved by the board and to have successfully passed examination of National Board of Medical Examiners

Exemptions

District of Columbia Considered for reciprocal or endorsement registration on an individual basis

Illinois Graduates of European medical colleges or universities after Jan 1 1943 with the exception of certain approved colleges in the British Isles Denmark Holland Norway Sweden and Switzerland will not be accepted after July 1 1954 However graduates of such European medical colleges after Jan 1 1943 may be considered providing they present diplomas of graduation from approved medical colleges in the United States after attendance in such colleges for at least one year and in addition have served rotating internship of one year in an approved hospital in Illinois

Kansas Applicant must be licensed to practice in country of graduation Application must be filed one year in advance

Maryland Graduates of recommended medical schools may be accepted after completion of one year of internship or residency in an approved hospital in the United States if their credentials have been approved and they have presented at least two letters from medical authorities in the hospital recommending them as to their professional ability and moral character

Graduates not on the recommended list who obtained the medical degree after Jan 1 1940 are not eligible must serve three years in hospitals in United States and submit recommendations from the hospitals

Graduates of foreign medical schools before Jan 1 1940 whose schools were known to have had acceptable standards at the time of graduation may be considered if credentials and professional experience in the United States are acceptable to the board Ability to write and speak English clearly is a primary requisite

Massachusetts Graduates of foreign medical schools who matriculated in medical school prior to Jan 1 1941 are eligible to apply for admission to the examinations Graduates of unapproved foreign medical schools who matriculated in medical school on or after Jan 1 1941 may apply to a Committee to review their qualifications

New Hampshire Diplomates of National Board of Medical Examiners eligible on reciprocity basis Temporary license valid until citizenship is leted may be given Considered on an individual basis

Michigan Completion of senior year in approved medical school in the United States or Canada or M S degree in any field allied with medicine from a graduate school affiliated with an approved medical school or in lieu of above certificate of an oral comprehensive examination in the basic sciences and clinical medicine by a joint screening board of examiners from the faculties of the medical schools of the University of Michigan and Wayne University

Minnesota Two year internship in Minnesota required Credentials must be submitted in original form and accompanied by notarized photostatic copies translated and will be verified and documents should bear evidence of being visaed by the U S Consul in the country wherein the *school is located*

New Jersey Original certificate covering medical courses original diploma and license in foreign country with translation by the Lawyers and Merchants Translation Bureau 11 Broadway New York City

North Dakota Applicant must take examination at University of North Dakota in conversational English and the basic medical sciences as required of second year medical students Temporary license issued which becomes permanent after six years of practice and after obtaining American citizenship

Rhode Island Must pursue postgraduate study or serve additional one year internship or residency After Jan 14 1955 must serve approved rotating internship in Rhode Island Applicant must be licensed to practice medicine and surgery in country in which school of graduation is *located*

South Dakota Applicant required to practice in an emergency area for four years under a temporary license and reappear before the board for permanent licensure After July 1 1955 only those cleared through IRO will *be eligible*

Vermont Must be diplomate of National Board of Medical Examiners

Virginia Applicant must be licensed to practice medicine and surgery in country in which school of graduation is located or must have completed the course of study and passed examinations equivalent to those required for a diploma or license conferring such full right to practice

New Jersey Internship completed in foreign countries after July 1 1934 not acceptable Acceptance limited to schools recognized by the board Considered on an individual basis After Jan 1 1955 must have minimum of three years training in a hospital approved by the board

New York Considered on an individual basis

North Carolina Considered on an individual basis

Ohio Graduates of schools of Continental Europe after 1943 are eligible if on accepted list If not licensed in a foreign country must have one year in hospital in the United States if not on accepted list two years of training in an approved hospital in the United States Considered on an individual basis

Pennsylvania Medical schools in China and Japan not acceptable

Rhode Island Matriculants in foreign medical faculties subsequent to Jan 1 1949 not acceptable unless applicant was a legal resident of Rhode Island at the time of matriculation at a foreign medical school and obtained his preprofessional training in the United States or Canada

Texas European graduates after 1939 limited to English speaking schools

Virginia Graduates of medical schools on accepted list admitted on same basis as approved medical schools in the United States and Canada Graduates of other foreign schools having the required length of study and diploma required for practice in the country of their graduation two years of internship in approved hospital in the United States or Canada within the past five years prior to application or one year of study in an approved medical school in lieu of one year of the internship may be considered for examination Noncitizens must sign declaration of intention to become a citizen

Hawaii Diplomates of National Board eligible on reciprocity basis

West Virginia Applicant must be resident of the state for three years preceding an application and be recommended by local medical society

Wisconsin 1953 Legislature established One Year Temporary Educational Permit which authorizes graduates of unapproved foreign schools to obtain residency training in approved hospitals May be renewed for two additional years

Virgin Islands Residence of six month required ranges from $1 to $10 Six states have a nonresident fee Guam does not charge a fee In Florida physicians are required to register with the state board of health, while Missouri, New York and West Virginia require biennial registration

Educational Council for Foreign Medical Graduates

When the program proposed by the Cooperating Committee on Graduates of Foreign Medical Schools was approved last year[2] by the organizations concerned, it was hoped that needed financing and staff would be obtained promptly so the program could be implemented at the earliest possible date Unfortunately, unforeseen difficulties were encountered in procuring a tentative declaration of tax exemption under the proper section of the Bureau of Internal Revenue's code These difficulties have been overcome just recently

The Educational Council has made formal application to one of the large philanthropic foundations for funds to match the generous commitment previously made by the Kellogg Foundation The new application was approved just as this material was going to press The administrative staff for the Educational Council now will be recruited promptly and detailed, with final planning being undertaken with anticipation that the program will become effective by late 1957 or early 1958

The board of the Educational Council has vigorously pursued its duties under the leadership of Dr Murray Kinsman as chairman, Dr Edwin Hamilton as vice chairman, and Dr Sarah Hardwicke as treasurer It is their intention to keep all interested fully informed in regard to further significant developments through published statements in THE JOURNAL

Licensure of Foreign Trained Physicians

In 1950, the Council on Medical Education and Hospitals of the American Medical Association and the Executive Council of the Association of American Medical Colleges developed a list of foreign medical schools whose graduates they recommend for consideration on the same basis as graduates of approved medical schools in the United States The list was offered as an advisory grouping for the use of any agency or organization that might find it helpful The position of the councils with respect to schools not named in the list is that they neither approve nor disapprove such schools The credentials of graduates of schools not included in this listing must be evaluated by those other agencies, licensing boards, organizations, or institutions to whom graduates of the schools apply for recognition When the Educational Council for Foreign Medical Graduates becomes active and its proposal for the evaluation service for foreign medical graduates is put into effect, the listing of foreign medical schools will have no further value and will be discontinued

The present requirements for foreign-trained physicians seeking medical licensure in the United States and its territories and outlying possessions are given in table 27 Foreign-trained physicians are not eligible for licensure in 10 states, the Canal Zone, and Puerto Rico Twenty-one boards limit licensure to those who have graduated from schools in the approved listing Other boards find the list useful in the evaluation of credentials while some boards maintain their own list of schools whose graduates are acceptable for licensure Seven boards do not require citizenship, 15 boards require declaration of intention, and 21 boards require full citizenship Twenty-eight boards reported that the foreign-trained physician must serve an internship or obtain further medical training in the United States In addition to the items tabulated in this table, 19 boards have other specific requirements for foreign-trained physicians and 15 boards reported varying exemptions The factual data pertaining to these regulations are included in the text immediately below the table

This chart was developed by the Council on Medical Education and Hospitals of the American Medical Association in an effort to assist the foreign-trained physician seeking licensure in the United States While an attempt has been made to present the situation as it exists, the table is intended to give only a summary of existing requirements Persons interested in licensure should supplement these data by communicating with the licensing boards Medical licensure in the United States is a 'state right' and is entirely under the jurisdiction of the governments of the individual states The power to license physicians is exercised through the medical licensing board of each state Official supplementary information concerning the acceptability of foreign credentials should be obtained directly from the licensing boards

The Council also publishes a compendium of information concerning foreign medical schools and the status of foreign medical credentials in the United States that has been prepared as an aid to foreign-trained physicians In addition to data pertaining to medical licensure, this booklet contains sections pertaining to graduate training in the medical specialties undergraduate medical study in the United States, advanced standing in American medical schools, and medical study in foreign medical schools

Table 28 records the number of graduates of foreign faculties of medicine examined for medical licensure by 37 boards in 1956 The figures include both American and foreign-born physicians educated abroad Graduates of medical schools in the Philippines, New Zealand, 16 South and Central American countries, 24 countries in Europe, and 13 countries in Asia were represented at examinations The number totaled 1,783 Graduates of 213 medical schools and five licensing corporations were examined The number who

TABLE 28.—FOREIGN-TRAINED PHYSICIANS EXAMINED F

Marginal Number	SCHOOL	1 Alabama		2 Arizona		3 California		4 Connecticut		5 Delaware		6 District of Columbia		7 Florida		8 Georgia		9 Illinois		10 Indiana		11 Iowa		12 Kansas		13 Maine		14 Maryland	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	ARGENTINA																												
1	Universidad Nacional de Buenos Aires					0	1											0	1									1	1
2	Universidad Nacional de Cordoba																											1	0
3	Universidad Nacional del Litoral Rosario																												
	AUSTRALIA																												
4	University of Adelaide Faculty of Medicine																	1	0									0	1
5	University of Melbourne Faculty of Medicine					1	0							0	1			0	1			1	0						
6	University of Sydney Medical School																									1	0		
	AUSTRIA																												
7	Karl Franzens Universitat Graz					0	1											1	4										
8	Leopold Franzens Universitat Innsbruck					0	1											1	3			2	1						
9	Uniwersytet Jagiellonski Wydzial Lekarski Cracow																												
10	Universitat Wien					1	2							0	2	1	0	4	3			1	0						
	BELGIUM																												
11	Universite Libre de Bruxelles Faculte de Medecine																												
12	Universite Gent			1	0																								
13	Universite de Liege Faculte de Medecine					1	0																					0	1
14	Universite Catholique de Louvain Faculte de Medecine											1	0					2	1			1	0					0	1
	BOLIVIA																												
15	Universidad Mayor de San Andres Facultad de Ciencias Medicas La Paz					0	1																						
	BRAZIL																												
16	Faculdade de Medicina Cirurgia e Pharmacia Bahia																												
17	Universidade de Rio de Janeiro					1	0																					1	0
18	Faculdade de Medicina e Cirurgia do Para																												
19	University of Minas Gerais School of Medicine Minas Gerais																											1	0
	BULGARIA																												
20	University of Sofia																												
	CHILE																												
21	Universidad de Chile Santiago																												
	CHINA																												
22	University of Hong Kong Faculty of Medicine																												
23	East China Union Medical College Nanking																											1	1
24	Peiping Union Medical College																							1	0				
25	Hsiang Ya Medical College Changsha					1	1																					1	1
26	Pennsylvania Medical School (St John's) Shanghai					4	0													1	0							10	0
27	Cheeloo University School of Medicine Shantung					1	0																						
28	Women's Christian Medical College Shanghai																												
29	National College of Medicine of Shanghai					1	0																						
30	West China Union University School of Medicine Chengtu Szechwan					2	1											1	2							1	0		
31	Southeastern Medical College Shanghai													1	1														
32	Dr Sun Yat Sen Medical College Ling Nan University Canton					1	2																					1	1
33	Aurora University French School of Medicine Shanghai					2	1																					1	0
34	Tung Teh Medical School Shanghai																											0	1
35	Military Medical College (National Defense Center) Nanking																											0	1
36	National Central University College of Medicine Nanking																	1	1									1	0
37	Tung Nan Medical College Shanghai																												
38	National Tung Chi University College of Medicine Shanghai Kiangsu																												
39	National Kweiyang Medical College Kweiyang Kweichow																												
40	National Kiangsu Medical College Chen Kiang Kiangsu					1	0																					1	1
41	Fukien Provincial Medical Foochow Fukien																					1	0						
42	National Chung Cheng Medical College Nan Chang					1	0																					1	0
	CHOSEN																												
43	Severance Union Medical College Keijo					1	0																						
	COLOMBIA																												
44	Universidad Nacional Facultad de Medicina Bogota																												
45	Universidad de Cartagena Facultad de Medicina Cartagena					0	1																						
46	Universidad de Antioquia Facultad de Medicina Medellin													0	1														
47	Universidad Catolica Facultad de Medicina Bogota													1	0														
	CUBA																												
48	Universidad de la Habana					2	2	1	2					4	7	2	0	13	22									1	[illegible]
	CZECHOSLOVAKIA																												
49	Deutsche Universitat Prag																	0	1							1	0	0	1
50	Universita Karlova Praha																	2	4					1	0			1	0
51	Univerzita Komenskeho Bratislava																	0	1										
52	Masarykova Universita Brno																	0	1										
	DENMARK																												
53	Kobenhavns Universitet					3	1																						
	DOMINICAN REPUBLIC																												
54	Universidad de Santo Domingo					0	1																					1	0
	ECUADOR																												
55	Universidad Central Facultad de Ciencias Medicas Quito					0	1											1	1	0	1								
56	Universidad de Cuenca Facultad de Medicina Cuenca																											1	0
57	Universidad de Guayaquil Facultad de Medicina Guayaquil																	1	1										
	EGYPT																												
58	Egyptian University Faculty of Medicine Cairo																											1	0
59	Fouad First University Faculty of Medicine Cairo					1	0																						
60	Faculty of Medicine Alexandria University Alexandria																	1	0										
	EL SALVADOR																												
61	Universidad de El Salvador San Salvador																	0	1										
	ENGLAND																												
62	University of Birmingham																											1	0
63	University of Cambridge					0	1											1	0										
64	University of Durham Medical School Kings College					2	0	0	1																				
65	University of Leeds School of Medicine																												
66	University of Liverpool					1	0							1	0														
67	University of London			1	0	2	0	1	0									1	1			1	0					1	0
68	University of Manchester																												
69	University of Oxford					1	0	1	0																				
70	University of Sheffield					2	0																						
71	Licentiate Royal College of Physicians London and Member Royal College of Surgeons of England	1	0																										
	ESTONIA																												
72	Tartu Ulikool									1	0					1	0	0	1										
Marginal Number		1		2		3		4		5		6		7		8		9		10		11		12		13		14	

15 Massachusetts	16 Michigan	17 Minnesota	18 Missouri	19 Nebraska	20 New Hampshire	21 New Jersey	22 New Mexico	23 New York	24 North Carolina	25 North Dakota	26 Ohio	27 Pennsylvania	28 Rhode Island	29 South Dakota	30 Tennessee	31 Texas	32 Virginia	33 Washington	34 West Virginia	35 Wisconsin	36 Hawaii Puerto Rico	37 Totals	38 Examined—Passed	39 Examined—Failed	40 % Failed	41 Number of Boards Examined by	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
0 1								2 1			1 0						2 0					11	6	5	45 5	7	1
																	1 0					2	2	0	0 0	2	2
					1 0												1 0					2	2	0	0 0	2	3
	2 0							0 1														5	3	2	40 0	4	4
								1 0									2 0					7	5	2	28 6	6	5
																						1	1	0	0 0	1	6
						0 1		2			4 1											16	7	9	56 2	5	7
1 0						1 0		0 1			6 2		1 1			1 0	0 1					23	13	10	43 5	10	8
						1 0																1	1	0	0 0	1	9
			0 1			3 0		6 14			2 2						3 0	1 0	1 0			47	23	24	51 1	12	10
								1 1														2	1	1	50 0	1	11
																						1	1	0	0 0	1	12
																						2	1	1	50 0	2	13
		1 0																				7	5	2	28 6	5	14
																						1	0	1	100 0	1	15
0 1																						1	0	1	100 0	1	16
																	1 0					3	3	0	0 0	3	17
								0 1														1	0	1	100 0	1	18
																						1	1	0	0 0	1	19
								2 2			1 1											6	3	3	50 0	2	20
													0 1				1 0				1 0	3	2	1	33 3	3	21
1 0																						1	1	0	0 0	1	22
																						2	1	1	50 0	1	23
								2 1											1 0			5	4	1	20 0	3	24
					0 1	1 0		1 2					1 0				2 1					13	7	6	46 2	7	25
	1 0					5 0		6 2				1 0				2 0	7 3					42	37	5	11 9	9	26
								1 0														2	2	0	0 0	2	27
								2 0														2	2	0	0 0	1	28
											1 0						2 0					4	4	0	0 0	3	29
								0 1			1 0					0 1						10	5	5	50 0	6	30
											1 0											3	2	1	33 3	2	31
																						5	2	3	60 0	2	32
			2 1					1 0			1 0											9	7	2	22 2	5	33
											1 0											2	1	1	50 0	2	34
																						1	0	1	100 0	1	35
											1 0											4	3	1	25 0	3	36
													1 0									1	1	0	0 0	1	37
											1 0		1 0									2	2	0	0 0	2	38
1 0																						1	1	0	0 0	1	39
																						3	2	1	33 3		40
																						1	1	0	0 0	1	41
													1 0									3	3	0	0 0	3	42
		1 0											1 0									3	3	0	0 0	3	43
																					0 1	1	0	1	100 0	1	44
																						1	0	1	100 0	1	45
						1 0							1 0									3	2	1	33 3	3	46
																						1	1	0	0 0	1	47
	1 0		1 3			1 0		3 8			1 1		1 0			1 3	2 1				1 0	86	35	51	59 3	15	48
	1 0							4 11														19	6	13	68 4	5	49
1 0	1 0	1 0	1 1					2 6			3 0						1 0					25	14	11	44 0	10	50
						0 1		2 0			2 0					1 1						8	5	3	37 5	5	51
		1 0						0 1			0 1											4	1	3	75 0	4	52
1 1		1 0						1 0														8	6	2	25 0	4	53
			1 0					1 4			1 0		2 0				1 2				1 3	18	8	10	55 6	8	54
																	1 0					5	2	3	60 0	4	55
													1 0				1 1					4	3	1	25 0	3	56
																						2	1	1	50 0	1	57
	1 0																					2	2	0	0 0	2	58
			1 0										1 0									3	3	0	0 0	3	59
																						1	1	0	0 0	1	60
										0 1												2	0	2	100 0	2	61
1 0																						2	2	0	0 0	2	62
2 0								1 0							1 0							6	5	1	16 7	5	63
									0 1													4	2	2	50 0	3	64
														1 0			2 0					3	3	0	0 0	2	65
								2 1									1 0		1 0			7	6	1	14 3	5	66
1 0								3 0									8 0					15	14	1	6 7	9	67
1 0									0 1			2 0										4	3	1	25 0	3	68
								1 0														3	3	0	0 0	3	69
																						2	2	0	0 0	1	70
						1 0		1 2									2 0					7	5	2	28 6	4	71
				1 1				1 4		2 0	1 0											13	7	6	46 2	7	72
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	

TABLE 28—FOREIGN-TRAINED PHYSICIANS EXAMINED FOR

Marginal Number	SCHOOL	1 Alabama		2 Arizona		3 California		4 Connecticut		5 Delaware		6 District of Columbia		7 Florida		8 Georgia		9 Illinois		10 Indiana		11 Iowa		12 Kansas		13 Maine		14 Marylan	
		P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F
	FINLAND																												
73	Helsingfors Universitet					1	0																						
74	Faculty of Medicine Turku University Turku																												
	FRANCE																												
75	Universite de Lyon																	1	1										
76	Universite de Montpelier																											1	0
77	Universite de Nancy					1	0																						
78	Universite de Paris					1	0											1	0							2	0	1	1
	GERMANY																												
79	Friedrich Wilhelms Universitat Berlin					1	0	0	1									0	2					1	0			1	0
80	Rheinische Friedrich Wilhelms Universitat Bonn					2	0							1	1														
81	Schlesische Friedrich Wilhelms Universitat Breslau																												
82	Friedrich Alexanders Universitat Erlangen							0	1					0	1			0	9			0	1			0	1	0	1
83	Albert Ludwigs Universitat Freiburg					1	0																						
84	Georg August Universitat Gottingen					1	0	0	1									0	3										
85	Ernst Moritz Arndt Universitat Griefswald																	0	1										
86	Universitat Heidelberg					4	0											5	7			1	0					1	0
87	Thuringische Landesuniversitat Jena																												
88	Christian Albrechts Universitat Kiel					2	0											0	1			1	1						
89	Universitat Leipzig																									1	0	1	
90	Phillips Universitat Marburg					1	0			1	0							0	3										
91	Ludwig Maximilians Universitat Munchen					8	4											4	11							1	1	3	
92	Universitat Rostock																												
93	Eberhard Karls Universitat Tubingen					2	0											5	4										
94	Julius Maximilians Universitat Wurzburg					3	0											0	3										
95	Hamburgische Universitat Hamburg					1	0											1	5							0	1	0	1
96	Universitat Koln					1	0											1	0										
97	*Johan Wolfgang Goethe Universitat Frankfurt am Main*					1	0											2	2									1	
98	Westfalische Wilhelms Universitat Munster																												
99	Medizinische Akademie Dusseldorf																												
100	Humboldt University Medical School Berlin																	1	0									1	0
101	Medizinische Fakultat der Johannes Guttenberg Universitat Mainz																	1	0										
102	Medizinische Fakultat der Freien Universitat Berlin					1	0											2	1										
	GREECE																												
103	National University of Athens					2	3									1	0	0	7							0	1	0	1
104	Faculty of Medicine University of Salonika Salonika																												
	HAITI																												
105	Ecole Nationale Port-au Prince																	3	2									0	[illegible]
	HONDURAS																												
106	Universidad Central de la Republica de Honduras Tegucigalpa					0	1																						
	HUNGARY																												
107	Magyar Kiralyi Pazmany Petrus Tudomanyegyetum Budapest					1	0	0	3									2	4							0	1		
108	Magyar Kiralyi Ferency Josef Tudomanyegyetum Szeged																	0	2									0	1
109	Magyar Kiralyi Erzebet Tudomanyegyetum Pecs					0	1											0	1										
110	Magyar Kiralyi Tisza Istvan Tudomanyegyetum Debrecen																												
	INDIA																												
111	University of Bombay							0	1																				
112	University of Calcutta																	0	1										
113	University of Punjab							0	1																				
114	University of Madras Medical College							1	6																				
115	Patna University Medical School Patna					1	0																						
116	University of Utkal Medical College Cuttack																												
	IRAN																												
117	Madresseh Teb Teheran							1	0					0	1											1	1	1	1
118	American School Medical Department Urmia							0	1																			[illegible]	0
	IRAQ																												
119	Royal Iraq Medical College Bagdad					3	0																					1	0
	IRELAND																												
120	Queen s University Belfast					3	0	1	0																				
121	National University of Ireland					9	1	4	3									1	3							[illegible]	0	[illegible]	1
122	University of Dublin																												
123	Schools of Surgery Royal College of Surgeons in Ireland Dublin																	1	1										
124	Licentiate of the Royal College of Physicians of Ireland and Licentiate of the Royal College of Surgeons in Ireland																	0	1										
125	Licentiate of the Apothecaries Hall Dublin																	1	0										
	ITALY																												
126	Regia Universita di Bologna					3	1	0	1									0	3			1	1			2	3	1	1
127	Regia Universita di Milano																									1	1	1	0
128	Regia Universita di Catania					1	0	1	1											0	1					1	1		
129	Regia Universita di Firenze					0	1																						
130	Regia Universita di Genova					1	0																						
131	Regia Universita di Messina																									1	1	1	1
132	Regia Universita de Modena					0	1											1	0										
133	Regia Universita di Napoli					2	1	0	1									1	1							1	1	1	1
134	Regia Universita di Padova																												
135	Regia Universita di Palermo																	0	1							1	0		
136	Regia Universita di Parma																	0	1										
137	Regia Universita di Pavia					1	0							0	1														
138	Regia Universita di Perugia					0	2			0	1															1	0		
139	Regia Universita di Pisa																												
140	Regia Universita di Roma					1	0											1	4							1	1	3	0
141	Regia Universita di Siena																												
142	Regia Universita di Torino					0	1											0	1							1	1		
143	Regia Universita di Bari							0	1																				
	JAPAN																												
144	Chiba University of Medicine					0	1																					1	1
145	Okayama Medical College																												
	LATVIA																												
146	Latvijas Universitate Riga					0	1											0	1							0	2	1	0
	LEBANON																												
147	American University of Beirut					2	0	0	1					1	0			1	1	1	0								
148	Faculte Francaise de l Universite de St Joseph Beyrouth																									1	1		
149	Syrian University Faculty of Medicine Damascus																									1	0		
	LITHUANIA																												
150	University of Kaunas					1	1											1	9										
	Marginal Number	1		2		3		4		5		6		7		8		9		10		11		12		13		14	

15 Massachusetts		16 Michigan		17 Minnesota		18 Missouri		19 Nebraska		20 New Hampshire		21 New Jersey		22 New Mexico		23 New York		24 North Carolina		25 North Dakota		26 Ohio		27 Pennsylvania		28 Rhode Island		29 South Dakota		30 Tennessee		31 Texas		32 Virginia		33 Washington		34 West Virginia		35 Wisconsin		36 Hawaii Puerto Rico		37 Totals	38 Examined—Passed	39 Examined—Failed	40 % Failed	41 Number of Boards Examined by	Marginal Number
P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
				1	0																																							2	2	0	0.0	2	73
																0	1																											1	0	1	100.0	1	74
																																		1	0									3	2	1	33.3	2	75
				1	0											0	2					0	1																					5	2	3	60.0	4	76
																																												1	1	0	0.0	1	77
																8	8					2	0											1	1									26	16	10	38.5	7	78
												1	0			2	2					4	0																					15	10	5	33.3	8	79
1	0					2	0															1	0											1	0									9	8	1	11.1	6	80
																2	1					1	0																					4	3	1	25.0	2	81
		1	0													0	1					3	5			2	0																	26	6	20	76.9	10	82
																0	1									1	0																	3	2	1	33.3	3	83
						0	1									2	2					2	1			1	0																	14	6	8	57.1	7	84
																																												1	0	1	100.0	1	85
		3	0													0	1					9	3											0	1									35	23	12	34.3	8	86
																						1	0																					1	1	0	0.0	1	87
				1	0																																							6	4	2	33.3	4	88
																2	3																											7	4	3	42.9	3	89
																						2	0			2	0							1	0									10	7	3	30.0	6	90
1	0	1	0	2	0	1	0									1	0					11	4			0	1					1	1	3	0									63	37	26	41.2	13	91
																0	2																											2	0	2	100.0	1	92
																0	1					2	1												0									18	12	6	33.3	5	93
		1	0	1	0											1	0																	1	1									11	7	4	36.3	6	94
1	0	1	0													0	1					4	0											2	0			1	0					19	11	8	42.1	10	95
																						0	1																					3	2	1	33.3	3	96
0	1	1	0			0	1									0	1					2	0			2	0							2	0									18	11	7	38.9	10	97
																0	1					1	1																					3	1	2	66.7	2	98
																0	1					1	0																					2	1	1	50.0	2	99
																																		1	0									3	3	0	0.0	3	100
																																		1	0									2	2	0	0.0	2	101
																																												4	3	1	25.0	2	102
0	1															0	2							1	0									0	1									20	4	16	80.0	9	103
																																		1	0									1	1	0	0.0	1	104
		1	0			1	0																											1	2									12	6	6	50.0	5	105
																																												1	0	1	100.0	1	106
0	1															2	11					3	3			1	0																	32	9	23	71.9	8	107
																0	1																											4	0	4	100.0	3	108
										0	1					0	2																	1	1									7	1	6	85.7	5	109
																1	5					2	0																					8	3	5	62.5	2	110
																																												1	0	1	100.0	1	111
																																												1	0	1	100.0	1	112
																																												1	0	1	100.0	1	113
																1	0																											2	2	0	0.0	2	114
																																												1	1	0	0.0	1	115
																																		1	0									1	1	0	0.0	1	116
0	1															3	4									1	0							2	2									19	9	10	52.6	8	117
																																												3	2	1	33.3	2	118
1	0																																	1	0									6	6	0	0	4	119
				1	0											3	0																	2	0									10	10	0	0	5	120
1	0																					1	0																					27	19	8	29.6	6	121
																																												1	1	0	0.0	1	122
																																												2	1	1	50.0	1	123
												1	0																															2	1	1	50.0	2	124
																																												1	1	0	0.0	1	125
												6	3			4	2					1	2			1	1							0	2			1	0					60	20	40	66.7	12	126
												1	0			2	1																	0	1									8	5	3	37.5	5	127
																						1	1																					8	4	4	50.0	6	128
												1	0			0	1																											3	1	2	66.7	3	129
		1	0													2	1																											5	4	1	20.1	3	130
																0	2					1	1			1	0																	9	4	5	55.6	5	131
																0	2																											4	1	3	75.0	3	132
												2	1			9	10									0	1																	33	16	17	51.5	8	133
										1	0	1	1			4	2					1	1											1	0									12	8	4	66.7	5	134
												2	1			3	2					2	0											1	0									13	9	4	30.8	6	135
																																												1	0	1	100.0	1	136
																0	2																											4	1	3	75.0	3	137
																0	1																											5	1	4	80.0	4	138
																0	2																											2	0	2	100.0	1	139
						1	1					8	1			10	14									1	0																	42	21	21	50.0	8	140
																0	1																											1	0	1	100.0	1	141
												1	2			2	3					1	0																					10	4	6	60.0	5	142
																0	5					2	0																					11	3	8	72.7	4	143
																																		1	0									4	2	2	50.0	3	144
																																		1	0									1	1	0	0.0	1	145
				2	0					0	1					1	13			1	0	4	3											1	1									32	10	22	68.7	10	146
0	1	1	0													1	1																	1	0									8	6	2	25.0	6	147
																																												6	3	3	50.0	4	148
																																												1	1	0	0.0	1	149
																1	8					3	2																					26	6	20	76.9	4	150
1		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37	38	39	40	41	

Marginal Number	SCHOOL	1 Alabama P	F	2 Arizona P	F	3 California P	F	4 Connecticut P	F	5 Delaware P	F	6 District of Columbia P	F	7 Florida P	F	8 Georgia P	F	9 Illinois P	F	10 Indiana P	F	11 Iowa P	F	12 Kansas P	F	13 Maine P	F	14 Maryland P	F
	MANCHUKUO																												
151	Mukden Medical College Mukden																												
	MEXICO																												
152	Universidad Nacional Autonoma de Mexico Mexico City					1	1											2	7					1	0			1	0
153	Escuela de Medicina de Nuevo Leon Monterrey					1	1											1	1										
154	Universidad de Guadalajara			0	1																								
155	Escuela Medico Militar Mexico City					1	0																						
156	Escuela de Medicina de Yucatan Merida																	0	1										
157	National Homeopathic Medical School Mexico City																												
158	National Autonomous University of Mexico Mexico City																	0	3										
	NETHERLANDS																												
159	Universiteit van Amsterdam					3	0											3	1									1	0
160	Rijks Universiteit te Groningen																												
161	Rijks Universiteit te Leiden					1	0											0	2	1	1								
162	Rijks Universiteit te Utrecht																					1	2						
	NEW ZEALAND																												
163	University of Otago Faculty of Medicine Dunedin					1	0																						
	NICARAGUA																												
164	Universidad de Nicaragua Facultades de Medicina en Leon y en Granada					0	2																						
	PANAMA																												
165	Facultad de Medicina de la Universidad de Panama Panama					1	0																						
	PERU																												
166	Universidad Mayor de San Marcos de Lima Facultad de Medicina					2	1											0	3									1	0
	PHILIPPINES																												
167	University of Santo Tomas Manila					2	2							1	0			1	1									1	1
168	University of the Philippines Manila					2	1	1	0																			3	0
	POLAND																												
169	Uniwersytet Jagiellonski Wydzial Lekarski Cracow																												
170	Uniwersytet Jana Kazimierza Wydzial Lekarski Lwow (Lemberg)																	1	1										
171	Uniwersytet Jozefa Pilsudskiego Warsaw																	0	3					1	0				
172	Uniwersytet Poznanski Wydzial Lekarski Poznan																	0	1										
173	Uniwersytet Stefana Batorego Wydzial Lekarski Wilno																	0	1									1	0
174	Medical Academy of Danzig Danzig																	1	1										
	PORTUGAL																												
175	Universidade de Lisboa Faculdade de Medicina																												
	RUMANIA																												
176	Universitatea din Bucuresti																												
177	Universitatea din Cluj													1	0													1	0
	SCOTLAND																												
178	University of Aberdeen																												
179	University of St Andrews St Andrews and Dundee																												
180	University of Edinburgh								1																				
181	University of Glasgow					1	0	1	0	1	0							1	0									1	0
182	Licentiate of the Royal College of Physicians of Edinburgh Licentiate of the Royal College of Surgeons of Edinburgh Licentiate of the Royal Faculty of Physicians and Surgeons of Glasgow																												
183	Polish School of Medicine Edinburgh					1	0																					1	0
	SOUTH AFRICA																												
184	University of Cape Town Cape Town																												
	SPAIN																												
185	Universidad Central de Espana Madrid																									1	0		
186	Universidad de Valencia Facultad de Medicina																											2	0
187	Universidad Literaria de Valladolid Facultad de Medicina																												
188	Universidad de Santiago Facultad de Medicina																	0	1										
189	Universidad de Salamanca Facultad de Medicina																									1	0		
	SWEDEN																												
190	Kungl Karolinska Universitetet Medicinska Fakulteten Lund																												
191	Karolinska Mediko Kirurgiska Institutet Stockholm																	0	1										
	SWITZERLAND																												
192	Universitat Basel							0	1																			1	0
193	Universitat Bern					1	0	2	0																			2	0
194	Universite de Geneve					3	0	1	0			1	0	1	2			1	0										
195	Universite de Lausanne					4	0	5	1					1	1														
196	Universitat Zurich					5	0	1	0					1	0							1	0						
197	University of Fribourg Fribourg																											0	1
	TURKEY																												
198	University of Istanbul																									1	0	2	0
199	Central Turkey College Aintab																												
	UNION OF SOCIALIST SOVIET REPUBLICS																												
200	First Leningrad Medical Institute Leningrad																												
201	Voronezh Medical Institute																												
202	Kazan Medical Institute Kazan																												
203	Kharkov Medical Institute																	0	1									0	1
204	Kiev Medical Institute																	0	1										
205	First Moscow Medical Institute																												
206	Odessa Medical Institute					0	1											0	1										
207	University of Tomsk Faculty of Medicine					0	1																						
208	Dnepropetrovsk Medical Institute Dnepropetrovsk																												
209	Severo Kavkaz Medical Institute																												
210	Krim Medical Institute																	0	1										
211	Second Moscow Medical Institute																	0	1										
212	State Medical Institute of Vinitza																												
213	Stalino Institute of Medicine																												
214	Third Medical Institute of Leningrad																												
215	Kazakh V M Molotov Institute of Medicine Alma Ata																												
216	Ashkhabad Institute of Medicine																												
	YUGOSLAVIA																												
217	Zagrebacka Universiteta Zagreb																												
218	Beogradskog Universiteta Beograd																	0	2										
	Totals	1		3		177		48		4		2		33		5		261		6		18		5		43		106	
	Totals Examined Passed	1		2		129		25		3		2		14		5		79		3		12		5		25		71	
	Totals Examined Failed	0		1		48		23		1		0		19		0		182		3		6		0		18		35	
	Percentage Failed	0.0		33.3		27.1		47.9		25.0		0.0		42.4		0.0		69.7		50.0		33.3		0.0		41.9		33.0	
	Marginal Number	1		2		3		4		5		6		7		8		9		10		11		12		13		14	

15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37	38	39	40	41	
Massachusetts		Michigan		Minnesota		Missouri		Nebraska		New Hampshire		New Jersey		New Mexico		New York		North Carolina		North Dakota		Ohio		Pennsylvania		Rhode Island		South Dakota		Tennessee		Texas		Virginia		Washington		West Virginia		Wisconsin		Hawaii Puerto Rico		Totals	Examined—Passed	Examined—Failed	% Failed	Number of Boards Examined by	Marginal Number
P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F						
																				0	1																							1	0	1	100.0	1	151
																1	1									1	0					3	3	1	1							10	11	54	30	24	44.4	9	152
		1	0																			2	0									[illegible]	2					1	0					16	12	4	25.0	6	153
																						1	0											0	1			1	0					4	2	2	50.0	4	154
																																												1	1	0	0.0	1	155
																																												1	0	1	100.0	1	156
																										1	0																	1	1	0	0.0	1	157
																																										1	0	4	1	3	75.0	2	158
1	0			1	0							1	0	0	1	1	0							1	0																			14	12	2	14.3	9	159
																1	0																											1	1	0	0.0	1	160
												1	0				[illegible]								0							1	0	1	0	[illegible]	0							19	14	5	26.3	9	161
																1	1																											5	2	3	60.0	2	162
				1	0																																							2	2	0	0.0	2	163
																																												2	0	2	100.0	1	164
																																												1	1	0	0.0	1	165
																						1	0																			0	1	9	4	5	55.6	4	166
																1	1									1	0							1	1							0	[illegible]	16	9	7	43.7	7	167
																[illegible]	1																	0	1									11	8	3	27.3	5	168
																1	1				0	1												1	0									8	5	3	37.5	4	169
		1	0													1				1	[illegible]	0	1			1	0																	17	8	9	52.9	6	170
																	1									[illegible]	0							2	0									18	11	7	38.9	6	171
																						1	[illegible]																					9	3	6	66.7	3	172
																1	1					0	1																					5	2	3	60.0	4	173
																																												2	1	1	50.0	1	174
																										1	0																	1	1	0	0.0	1	175
																0	1									1	0																	2	1	1	50.0	2	176
																0	1																											3	2	1	33.3	3	177
																1	1																											2	1	1	50.1	1	178
																[illegible]	0																	0	1									3	2	1	33.3	2	179
																1	0															1	0							1	0			7	[illegible]	1	14.3	4	180
		1	0													1	0																	[illegible]	0									9	9	0	0.0	8	181
																1	0					1	1											1	0									4	3	1	25.0	3	182
		1	0																				[illegible]				0																	5	5	0	0.0	[illegible]	183
																2	1																											3	2	1	33.3	1	184
0	1															1	1					1	0																			13	3	21	16	5	23.8	5	185
																																		[illegible]	1									5	4	1	20.0	2	186
																																										2	0	2	2	0	0.0	1	187
																																												1	0	1	100.0	1	188
																																												1	1	0	0.0	1	189
																																				1	0							1	1	0	0.0	1	190
																																												1	0	1	100.0	1	191
												1	0			0	[illegible]					1	0	1	0															1	0			11	5	6	54.5	7	192
												1	0			3	1																											10	9	1	10.0	5	193
												1	0	0	1	[illegible]							[illegible]		0									1	0									38	30	8	21.1	11	194
0	1									1	0	1	0			18						1	0													[illegible]	0							43	33	10	23.2	9	195
										[illegible]	0					[illegible]	0													1	0					1	0							17	17	0	0.0	8	196
																																												1	0	1	100.0	1	197
0	1									1	0																							[illegible]	2									9	6	3	33.3	5	198
		1	0																																									1	1	0	0.0	1	199
																1	0																	0	1									2	1	1	50.0	2	200
																0	1																											1	0	1	100.0	1	201
																0	1																											1	0	1	100.0	1	202
																						1	[illegible]																					5	1	4	80.0	3	203
																0	1					1	[illegible]																					5	1	4	80.0	2	204
																1	4																											5	1	4	80.0	1	205
																0	2																											4	0	4	100.0	3	206
																0	1									1	0																	3	1	2	66.7	3	207
																				1	0													2	0									3	3	0	0.0	2	208
																										1	1																	2	1	1	50.0	1	209
																																												1	0	1	100.0	1	210
																																												1	0	1	100.0	1	211
												1	0																															1	1	0	0.0	1	212
												1	0																															1	1	0	0.0	1	213
																										1	1																	2	1	1	50.0	1	214
																										1	1																	2	1	1	50.0	1	215
																						1	0																					1	1	0	0.0	1	216
																1	2																	1	0									4	2	2	50.0	2	217
																0	2					0	2															1	0					7	1	6	85.7	4	218
27		23		16		20		2		9		52		2		467		2		9		166		10		47		1		2		28		115		7		8		2		56		1 783					
16		23		16		11		1		6		41		0		193		0		7		117		10		39		1		2		17		84		7		8		2		35			1 012				
11		0		0		9		1		3		11		2		274		2		2		49		0		8		0		0		11		31		0		0		0		21				771			
40.7		0.0		0.0		45.0		50.0		33.3		21.6		100.0		58.7		100.0		22.2		29.5		0.0		16.7		0.0		0.0		39.3		27.0		0.0		0.0		0.0		37.5					43.2		
15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31		32		33		34		35		36		37	38	39	40	41	

were successful was 1,012, failures numbered 771, or 43.2%. More than 50 graduates each from the universities of Havana, Munich, Bologna, and Mexico City were tested in 1956, and more than 20 graduates each from 17 other schools were examined.

The greatest number examined by any one state was 467 in New York, of whom 193 passed and 274, or 58.7%, failed. Illinois examined 261, of whom 79 passed and 182, or 69.7%, failed. There were 177 examined in California, of whom 129 passed and 48, or 27.1% failed, 166 in Ohio, of whom 117 passed and 49, or 29.5%, failed, 115 in Virginia, of whom 84 passed and 31, or 27%, failed, and 106 in Maryland, of whom 71 passed and 35, or 33%, failed. Other states examined fewer than 100 each.

Table 29 presents the number of graduates of foreign faculties of medicine examined for medical licensure in the United States in 27 years (1930-1956). In 1936 the number of foreign-trained physicians seeking licensure in the United States began to increase, and by 1940 over three times as many were tested as in

TABLE 29.—*Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1930-1956*

Year	Number Examined	Passed	Percentage Failed
1930	167	92	44.9
1931	158	91	42.4
1932	182	96	47.3
1933	200	129	35.5
1934	285	170	40.2
1935	437	303	30.7
1936	588	382	35.0
1937	920	637	30.8
1938	1,164	716	38.5
1939	1,691	839	50.4
1940	2,088	948	54.7
1941	1,717	698	59.2
1942	1,630	890	45.4
1943	1,031	518	49.8
1944	691	325	53.0
1945	475	209	56.0
1946	495	221	55.3
1947	601	283	52.9
1948	639	311	51.3
1949	737	319	56.7
1950	799	359	55.0
1951	1,006	524	47.9
1952	1,208	648	46.3
1953	1,463	796	46.3
1954	1,612	925	42.6
1955	1,771	1,042	41.4
1956	1,783	1,012	43.2
Totals	25,568	13,501	47.6

TABLE 30.—FOREIGN-TRAINED PHYSICIANS LICENSED BY STATE BOARDS, 1946-1956

	Examination							Reciprocity and Endorsement							Grand Totals
	1946-1951	1952	1953	1954	1955	1956	Total	1946-1951	1952	1953	1954	1955	1956	Total	
Alabama	1	2	1	2	1	1	8	2	1	0	0	0	0	3	11
Arizona	1	1	1	0	2	3	8	4	0	0	1	4	1	10	18
Arkansas	1	0	0	0	0	0	1	1	0	0	0	1	0	2	3
California	191	98	95	83	135	177	779	48	1	0	1	0	0	50	829
Colorado	38	1	1	1	3	0	44	0	0	0	0	0	0	0	44
Connecticut	40	7	21	13	13	48	142	64	4	9	19	23	16	135	277
Delaware	1	2	1	1	1	4	10	3	2	0	3	0	0	8	18
District of Columbia	23	2	2	6	2	2	37	48	4	6	14	82	12	94	131
Florida	35	14	11	13	27	33	133	0	0	0	0	0	0	0	133
Georgia	11	2	6	6	2	5	32	4	1	2	3	3	6	19	51
Idaho	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Illinois	234	153	208	216	157	261	1,229	0	0	0	3	0	0	3	1,232
Indiana	3	0	0	20	2	6	31	5	2	0	16	4	9	36	67
Iowa	4	3	10	5	4	18	44	22	5	3	2	1	1	34	78
Kansas	4	1	0	1	3	5	14	0	0	0	0	0	0	0	14
Kentucky	1	0	0	0	0	0	1	2	0	0	1	0	1	4	5
Louisiana	0	0	1	3	1	0	5	0	0	0	0	0	0	0	5
Maine	11	4	13	16	44	43	131	7	3	2	7	6	4	29	160
Maryland	73	31	30	44	55	106	339	6	0	0	1	0	1	8	347
Massachusetts	38	10	10	7	11	27	103	7	1	1	4	2	4	19	122
Michigan	6	10	15	25	40	23	119	5	1	5	7	17	14	49	168
Minnesota	17	10	23	17	17	16	100	0	0	0	0	0	0	0	100
Mississippi	6	1	0	1	2	0	10	2	0	0	0	0	0	2	12
Missouri	31	5	3	4	14	20	77	5	0	0	1	0	2	8	85
Montana	1	0	0	0	0	0	1	1	1	0	1	0	0	3	4
Nebraska	3	0	0	0	0	2	5	6	0	1	1	0	0	8	13
Nevada	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
New Hampshire	5	2	1	4	3	9	24	18	1	1	6	3	5	34	58
New Jersey	32	3	6	19	23	52	135	149	21	25	24	22	42	283	418
New Mexico	1	1	0	3	4	2	11	11	1	4	1	1	2	20	31
New York State	914	171	172	184	159	467	2,067	201	31	15	8	7	5	267	2,334
North Carolina	7	4	11	8	0	2	32	2	1	2	1	2	1	9	41
North Dakota	18	6	1	0	5	9	39	0	0	0	0	0	0	0	39
Ohio	91	34	66	117	160	166	634	129	23	36	48	47	27	310	944
Oklahoma	2	0	0	0	0	0	2	2	0	1	1	1	0	5	7
Oregon	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
Pennsylvania	29	6	7	12	6	10	70	0	0	0	0	0	0	0	0
Rhode Island	20	23	26	31	35	47	185	1	1	0	1	1	2	6	191
South Carolina	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1
South Dakota	12	5	1	2	4	1	25	1	0	0	0	0	1	2	27
Tennessee	5	1	0	1	0	2	9	2	0	1	0	0	3	6	15
Texas	26	6	18	14	16	28	108	28	0	0	0	3	4	35	143
Utah	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vermont	1	0	0	0	0	0	1	3	0	0	2	3	2	10	11
Virginia	17	8	14	23	54	115	231	13	3	0	0	0	0	16	247
Washington	15	4	2	5	5	7	38	6	3	4	4	6	5	28	66
West Virginia	4	1	4	1	0	8	18	0	0	0	0	0	0	0	18
Wisconsin	2	3	1	3	2	2	13	3	1	0	3	1	8	16	29
Wyoming	0	0	0	0	0	0	0	2	0	0	0	0	0	2	2
U. S. possessions and territories	37	13	13	29	30	56	178	18	3	3	3	0	2	29	207
Totals	2,013	648	796	943	1,042	1,783	7,225	831	115	121	188	168	180	1,603	8,828

1936 Beginning in 1944, the numbers examined decreased until 1951, when there was a noticeable increase In each succeeding year the numbers examined has increased There was a slight increase in 1956 over the previous year in the numbers examined, while the figure representing those who passed the examination in 1956 decreased as compared with 1955 At no time in the 27-year period did fewer than 30 7% fail in a given year The percentage of failures in 1956 was 43 2 and for the entire period shown the overall percentage of failures was 47 6

In table 30 figures are given for an 11-year period (1946-1956) showing the number of foreign-trained physicians licensed by each state board, both after written examinations and by endorsement of credentials To conserve space, in the first column under the headings "Examination' and "Reciprocity and Endorsement," the figures combine the years 1946 to 1951 inclusive Thereafter, they are given for each year While table 29 reflects the numbers of candidates registered after examination only and indicates the percentage failing in each year table 30 reflects the total licensed in each state In this 11-year period,

TABLE 31 —*Graduates of Foreign Medical Faculties Representing Additions to the Medical Profession, 1956*

	Examination	Reciprocity and Endorsement	Total
Arizona	2	0	2
California	79	0	79
Colorado	1	0	1
Connecticut	20	2	22
Delaware	1	0	1
District of Columbia	2	4	6
Florida	5	0	5
Georgia	3	0	3
Illinois	76	0	76
Indiana	8	2	[illegible]
Iowa	4	0	4
Kansas	4	0	4
Maine	25	0	25
Maryland	51	0	51
Massachusetts	9	1	10
Michigan	11	0	11
Minnesota	12	0	12
Missouri	9	0	9
Nebraska	1	0	1
New Hampshire	5	2	7
New Jersey	25	0	25
New York	167	4	171
North Dakota	3	0	3
Ohio	139	0	139
Oklahoma	1	0	1
Pennsylvania	7	0	7
Rhode Island	33	0	33
South Dakota	1	0	1
Tennessee	2	0	2
Texas	16	0	16
Virginia	72	0	72
Washington	3	3	6
West Virginia	6	0	6
Wisconsin	2	0	2
Puerto Rico	34	0	34
Totals	834	18	852

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California	Dr Louis E Jones Secretary 1020 N St Room 536 Sacramento
Colorado	Mrs Beulah H Hudgens Executive Secretary 715 Republic Bldg Denver 2
Connecticut	Dr Creighton Barker Secretary 160 St Ronan St New Haven
Delaware	Dr J S McDaniel Secretary Professional Building Dover
District of Columbia	Mr Paul Foley Deputy Director 1740 Massachusetts Ave N W Washington
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Idaho	Mr Armand L Bird Executive Secretary 364 Sonna Bldg Boise
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Louisiana	Dr Edwin H Lawson Secretary 930 Hibernia Bank Bldg New Orleans 12
Maine	Dr Adam P Leighton Secretary 192 State St Portland
Maryland	Dr Lewis P Gundry Secretary Treasurer 1215 Cathedral St Baltimore 1
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Minnesota	Dr F H Magney Secretary 230 Lowry Medical Arts Bldg St Paul 2
Mississippi	Dr Felix J Underwood Executive Officer Old Capitol Jackson 113
Missouri	Mr John A Hailey Executive Secretary P O Box 4 Jefferson City
Montana	Dr Sidney A Cooney Secretary 7 W Sixth Avenue Helena
Nebraska	Mr Husted K Watson Director State Capitol Building Room 1009 Lincoln 9
Nevada	Dr George H Ross Secretary 112 N Curry St Carson City
New Hampshire	Dr John S Wheeler Secretary 107 State House Concord
New Jersey	Dr Patrick H Corrigan Secretary 28 W State St Trenton
New Mexico	Dr R C Derbyshire Secretary 227 E Palace Ave Sante Fe
New York	Dr Stiles D Ezell Secretary 23 S Pearl St Albany 7
North Carolina	Dr Joseph J Combs Secretary 716 Professional Bldg Raleigh
North Dakota	Dr C J Glaspel Secretary Grafton
Ohio	Dr H M Platter Secretary 21 W Broad St Columbus 15
Oklahoma	Dr E F Lester Secretary 813 Braniff Bldg Oklahoma City
Oregon	Mr Howard I Bobbitt Executive Secretary 609 Failing Bldg Portland 4
Pennsylvania	Mrs Margaret G Steiner Acting Secretary Box 911 Harrisburg
Rhode Island	Mr Thomas B Casey Administrator 366 State Office Bldg Providence
South Carolina	Mr N B Heyward Secretary 1329 Blanding St Columbia
South Dakota	Mr John C Foster Executive Secretary 300 First National Bank Bldg Sioux Falls
Tennessee	Dr H W Qualls Secretary 1635 Exchange Bldg Memphis 3
Texas	Dr M H Crabb Secretary 1714 Medical Arts Bldg Fort Worth 2
Utah	Mr Frank E Lees Director 324 State Capitol Bldg Salt Lake City 1
Vermont	Dr F J Lawliss Secretary Richford
Virginia	Dr K D Graves Secretary 631 First St S W Roanoke (address correspondence to Board of Medical Examiners)
Washington	Mr Thomas A Carter Secretary Capitol Building Olympia
West Virginia	Dr Newman H Dyer Secretary State Office Building No 3 Charleston 5
Wisconsin	Dr Thomas W Tormey Jr Secretary State Office Building 1 W Wilson St Madison
Wyoming	Dr Franklin D Yoder Secretary State Office Building Cheyenne
Alaska	Dr W M Whitehead Secretary 172 S Franklin St Juneau
Canal Zone	Dr Charles O Bruce Health Director Balboa Heights
Guam	Dr S J Provencher Acting Secretary Marianos Islands Agana Guam
Hawaii	Dr I L Tilden Secretary 1020 Kapiolani St Honolulu
Puerto Rico	Mr Joaquin Mercado Cruz Box 9156 Santurce
Virgin Islands	Dr Earle M Rice St Thomas

there were 8,828 licenses issued to foreign-trained physicians By examination there were 7,225 issued, and by reciprocity or endorsement of credentials 1,603 were registered

In table 31 are recorded figures regarding foreign trained physicians who were not previously licensed in the United States and therefore are additions to the medical profession In 1956 there were 852 in this group, 834 of whom were licensed after written examination and 18 by endorsement of credentials Similar figures for the previous six years (1950-1955) together with the figures for 1956 are given in table 32 In this seven-year period, 4,543 foreign-trained physicians were added to the physician population of the United States, 4,363 obtaining licensure by written examination and 180 by endorsement of credentials

TABLE 32 –*Additions to the Medical Profession Representing Graduates of Foreign Medical Faculties, 1950-1956*

Year	Examination	Reciprocity and Endorsement	Totals
1950	267	41	308
1951	425	25	450
1952	545	24	569
1953	662	23	685
1954	749	23	[illegible]
1955	881	26	907
1956	834	18	852
Totals	4 363	180	4,543

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Basic science laws currently exist in 19 states, the District of Columbia, and Alaska These laws provide for the establishment of a board of examiners in the basic sciences whose function is to determine the adequacy of background knowledge of the basic sciences of all candidates seeking licensure to practice in any of the healing arts recognized in the statutes The basic science boards have no licensing power, but a certificate indicating successful completion of their examinations is a prerequisite for licensure wherever such boards exist Table 33 lists the states, district, and territory where basic science laws exist and the year of their enactment There has been no legislation enacting basic science laws since 1951

TABLE 33 –*States Having Basic Science Laws and Year of Enactment*

Alaska	1946	Nebraska	1927
Arizona	1936	Nevada	1951
Arkansas	1929	New Mexico	1941
Colorado	1937	Oklahoma	1937
Connecticut	1925	Oregon	1934
District of Columbia	1929	Rhode Island	1940
Florida	1939	South Dakota	1939
Iowa	1936	Tennessee	1943
Michigan	1937	Texas	1919
Minnesota	1927	Washington	1927
Wisconsin	1925		

The healing are, as defined in the laws, refers to any system, treatment, operation, diagnosis, prescription, or practice for the ascertainment, cure, relief, palliation, adjustment, or correction of any human disease, ailment, deformity, injury, or unhealthy or abnormal physical or mental condition

The basic sciences designated in the legislation vary with the different laws All of them include anatomy, pathology, and physiology, and the majority include bacteriology and chemistry Ten include hygiene, two diagnosis, and one requires public health Table 34 lists the basic science boards and the subjects in which examinations are required

The laws in some states provide for certification without examination by exemption, waiver, reciprocity, or endorsement The credentials acceptable for

TABLE 34 –*Subjects Included in Basic Science Examinations*

	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology	Public Health
Alaska	x	x	x		x	x	x	
Arizona	x	x	x		x	x	x	
Arkansas	x	x	x		x	x	x	
Colorado	x	x	x			x	x	
Connecticut	x			x	x	x	x	
District of Columbia	x	x	x			x	x	
Florida	x	x	x			x	x	
Iowa	x	x	x		x	x	x	
Michigan	x	x	x			x	x	
Minnesota	x	x	x		x	x	x	
Nebraska	x	x	x		x	x	x	
Nevada	x	x	x			x	x	
New Mexico	x	x	x			x	x	
Oklahoma	x	x	x			x	x	
Oregon	x		x		x	x	x	
Rhode Island	x	x	x			x	x	
South Dakota	x	x	x			x	x	
Tennessee	x	x	x			x	x	
Texas	x	x	x		x	x	x	x
Washington	x	x	x		x	x	x	
Wisconsin	x			x		x	x	

TABLE 35 –*Reciprocity, Endorsement, Waiver, or Exemption Policies of Basic Science Boards*

Credentials Accepted

Alaska

Physicians are accepted on reciprocity from those states with which the board of medical examiners has established reciprocal agreements

Arizona

Any basic science certificate that has been obtained by an examination before the issuing board and provided that at least four subjects were passed at one sitting Practitioners licensed in a state requiring a basic science certificate prior to the passage of basic science legislation are eligible on a previous licensure basis

Arkansas

Reciprocity on the basis of written examination taken before all states except Florida and Iowa Credential of the National Board of Medical Examiners acceptable for reciprocal registration

Colorado

Reciprocity as to examination with the following basic science boards Alaska Arizona Arkansas Michigan Minnesota Nebraska Nevada New Mexico Oklahoma Oregon Rhode Island South Dakota Tennessee Texas and Washington

Reciprocity as to examination with the Iowa Basic Science Board is granted to those candidates having made original application to that board on or before June 1 1949 Candidates making application after that date and holding a certificate must meet the minimum requirements of the board, i e that the candidate pass an examination in the basic sciences under a basic science board and that he pass at one sitting at least four of the five subjects given by the Colorado board with subsequent passing of the fifth subject

With Connecticut and Wisconsin there is reciprocity as to examination in the subjects of anatomy physiology, and pathology Candidates from these states are required to pass the examinations in chemistry and bacteriology under this board

TABLE 35 —*Reciprocity, Endorsement, Waiver, or Exemption Policies of Basic Science Boards—Continued*

Credentials Accepted—Continued

Connecticut
No reciprocity Endorsement of the certificate of the National Board of Medical Examiners and of state licenses of graduates of American medical schools

District of Columbia
Reciprocity has not been established The board may exempt an applicant All applications are considered on an individual basis

Florida
No reciprocity waiver or exemption policies

Iowa
On an individual basis applications for registration by exemption are considered on the basis of a license from a board of medical examiners the certificate of a basic science board and the certificate of the National Board of Medical Examiners

Michigan
Certificates issued by examination are accepted for registration by waiver from the basic science boards of Alaska Arkansas Colorado District of Columbia Minnesota Nebraska New Mexico Rhode Island South Dakota Tennessee Texas Oklahoma Nevada Iowa Oregon Washington and Wisconsin
Applicants who present certificate from the basic science boards of Washington and Oregon are examined in bacteriology
Applicants who present certificates from the Wisconsin Basic Science Board are examined in bacteriology and chemistry
The Michigan board may accept in lieu of its own examination the basic science portion of the examination given by any legally constituted examining or licensing board in the healing arts if such examination is equal or equivalent to the examination given by the Michigan Board

Minnesota
Reciprocity on an automatic basis with the basic science boards of Arkansas Colorado Nebraska Oregon and Tennessee (after Feb 9 1950) and the part 1 examination of the National Board of Medical Examiners
Reciprocity on an individual basis with the basic science boards of Alaska Arizona Connecticut Michigan Nevada New Mexico Oklahoma South Dakota and Texas
Reciprocity on an individual basis with the medical licensing boards of Indiana Kansas Kentucky New York (subsequent to 1925) Oklahoma Texas Vermont Virginia and Washington
Partial credit granted for grades in certain subjects passed in examinations of medical licensing boards of Alabama Georgia Louisiana New York (subsequent to 1925) North Carolina Wisconsin and the District of Columbia

ebraska
No reciprocal agreements exist Waiver may be granted when certain requirements specified in the law have been met These requirements relate to age of the applicant moral character high school graduation or equivalent the fact of having passed an examination given by a basic science board or a licensing board in another state the requirements of which are not less than those of Nebraska and providing the other state concerned extends like privileges to those taking the examination in Nebraska States eligible for consideration are those states granting exemptions from examinations to those from Nebraska where the conditions of the laws and regulations have been met even though these conditions differ somewhat from the requirements of Nebraska States not eligible for such consideration are those states prohibited by law from granting waiver or reciprocity

evada
Reciprocity with basic science boards of Arizona Colorado Iowa Minnesota New Mexico Oklahoma Oregon South Dakota Tennessee Texas and Washington Waiver with basic science boards of Arkansas Florida Michigan Nebraska and Wisconsin (partial waiver)

ew Mexico
Reciprocity with basic science boards of Arizona Arkansas Colorado Iowa, Michigan Minnesota New Mexico Oklahoma Oregon South Dakota Tennessee Washington and Wisconsin Waiver granted to doctors who have been in continuous practice for 30 years or more

klahoma
Applicants are reviewed on an individual basis A basic science certificate is not a prerequisite for licensure by reciprocity but is a requirement for licensure by examination

Oregon
Reciprocity on the basis of written examination with basic science boards of Arkansas Colorado Iowa Minnesota Nebraska Nevada New Mexico Oklahoma South Dakota Tennessee Texas Washington and Wisconsin

Rhode Island
Endorsement after oral examination with Massachusetts Board of Registration in Medicine and basic science boards of Colorado District of Columbia and Oklahoma

South Dakota
Reciprocity with basic science boards of Arizona Arkansas Colorado Iowa Michigan Minnesota Nebraska Nevada New Mexico Oklahoma Oregon Tennessee Texas Washington and Wisconsin

Tennessee
Reciprocity with basic science boards of Alaska Arizona Arkansas Colorado District of Columbia Michigan Minnesota Nebraska Nevada New Mexico Oklahoma Oregon South Dakota Texas *Washington and Wisconsin*

Texas
Reciprocity with the basic science boards of Alaska Arizona Arkansas Colorado Iowa Michigan Minnesota Nebraska Nevada Oklahoma Oregon South Dakota Tennessee Washington and partial reciprocity with Wisconsin

Washington
Reciprocity on the basis of written examination with all states *having basic science boards Examination required in subjects* not covered in Washington examination

Wisconsin
Waiver to commissioned officers of the armed forces or the Public Health Service to an applicant who has passed part 1 of the examination of the National Board of Medical Examiners to a physician licensed to practice medicine in a state not having a basic science law or licensed in a state before the establishment of a basic science board provided he has served an internship or has practiced for at least one year since the license was granted to a physician licensed in Canada and to foreign trained physicians holding an M D degree from an acceptable school who are licensed to practice medicine in the country in which the school attended is located
Reciprocity on the basis of written examination with all states *having basic science boards*

certification by one of these methods are outlined in table 35

The results of examinations given and the number of certificates issued on the basis of waiver, exemption, reciprocity, or endorsement as reported by the basic science boards during 1956 are shown in tables 36 and 37 The laws do not specify that a candidate reveal his school of practice The basic science boards were developed for the purpose of insuring, insofar as possible, that all individuals who enter into the area of the healing arts have what is generally considered to be an adequate preparatory background Table 36 records the total number of candidates reported by the several boards as having been examined and the number who passed and failed No attempt has been made to differentiate the schools of the healing arts represented by the candidates examined or certified Seven states either had no failures or did not report

TABLE 36 —*Applicants Examined in Basic Sciences 1956*

	Examined	Passed	Failed	Failed
Alaska	6	5	1	16.7
Arizona	77	77	0*	0.0
Arkansas	382	293	89	23.2
Colorado	160	160	0*	0.0
Connecticut	212	194	18	8.5
District of Columbia	14	12	2	14.3
Florida	882	882	0*	0.0
Iowa	192	192	0*	0.0
Michigan	391	269	122	31.2
Minnesota	237	237	0*	0.0
Nebraska	156	120	36	23.1
Nevada	74	43	31	41.9
New Mexico	94	94	0	0.0
Oklahoma	192	110	82	42.7
Oregon	163	91	72	44.2
Rhode Island	157	110	47	29.9
South Dakota	96	49	47	49.0
Tennessee	133	133	0*	0.0
Texas	208	180	28	13.5
Washington	200	175	25	12.5
Wisconsin	449	308	141	31.4
Total	4 475	3 734	741	16.6

Failure data not reported

there were 8,828 licenses issued to foreign-trained physicians By examination there were 7,225 issued, and by reciprocity or endorsement of credentials 1,603 were registered

In table 31 are recorded figures regarding foreign trained physicians who were not previously licensed in the United States and therefore are additions to the medical profession In 1956 there were 852 in this group, 834 of whom were licensed after written examination and 18 by endorsement of credentials Similar figures for the previous six years (1950-1955) together with the figures for 1956 are given in table 32 In this seven-year period, 4,543 foreign-trained physicians were added to the physician population of the United States, 4,363 obtaining licensure by written examination and 180 by endorsement of credentials

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Year	Examination	Reciprocity and Endorsement	Totals
1950	267	41	308
1951	425	25	450
1952	545	24	569
1953	662	23	685
1954	749	23	772
1955	881	26	907
1956	834	18	852
Totals	4 363	180	4 543

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Basic science laws currently exist in 19 states, the District of Columbia, and Alaska These laws provide for the establishment of a board of examiners in the basic sciences whose function is to determine the adequacy of background knowledge of the basic sciences of all candidates seeking licensure to practice in any of the healing arts recognized in the statutes The basic science boards have no licensing power, but a certificate indicating successful completion of their examinations is a prerequisite for licensure wherever such boards exist Table 33 lists the states, district, and territory where basic science laws exist and the year of their enactment There has been no legislation enacting basic science laws since 1951

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District of Columbia	1929	Rhode Island	1940
Florida	1939	South Dakota	1939
Iowa	1935	Tennessee	1943
Michigan	1937	Texas	1919
Minnesota	1927	Washington	1927
Wisconsin	1925		

The healing are, as defined in the laws, refers to any system, treatment, operation, diagnosis, prescription, or practice for the ascertainment, cure, relief, palliation, adjustment, or correction of any human disease, ailment, deformity, injury, or unhealthy or abnormal physical or mental condition

The basic sciences designated in the legislation vary with the different laws All of them include anatomy, pathology, and physiology, and the majority include bacteriology and chemistry Ten include hygiene, two diagnosis, and one requires public health Table 34 lists the basic science boards and the subjects in which examinations are required

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TABLE 34 —*Subjects Included in Basic Science Examinations*

	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology	Public Health
Alaska	x	x	x		x	x	x	
Arizona	x	x	x		x	x	x	
Arkansas	x	x	x		x	x	x	
Colorado	x	x	x			x	x	
Connecticut	x			x	x	x	x	
District of Columbia	x	x	x			x	x	
Florida	x	x	x			x	x	
Iowa	x	x	x		x	x	x	
Michigan	x	x	x			x	x	
Minnesota	x	x	x		x	x	x	
Nebraska	x	x	x		x	x	x	
Nevada	x	x	x			x	x	
New Mexico	x	x	x			x	x	
Oklahoma	x	x	x			x	x	
Oregon	x		x		x	x	x	
Rhode Island	x	x	x			x	x	
South Dakota	x	x	x			x	x	
Tennessee	x	x	x			x	x	
Texas	x	x	x		x	x	x	x
Washington	x	x	x		x	x	x	
Wisconsin	x			x		x	x	

TABLE 35 —*Reciprocity, Endorsement, Waiver, or Exemption Policies of Basic Science Boards*

Credentials Accepted

Alaska

Physicians are accepted on reciprocity from those states with which the board of medical examiners has established reciprocal agreements

Arizona

Any basic science certificate that has been obtained by an examination before the issuing board and provided that at least four subjects were passed at one sitting Practitioners licensed in a state requiring a basic science certificate prior to the passage of basic science legislation are eligible on a previous licensure basis

Arkansas

Reciprocity on the basis of written examination taken before all states except Florida and Iowa Credential of the National Board of Medical Examiners acceptable for reciprocal registration

Colorado

Reciprocity as to examination with the following basic science boards Alaska Arizona Arkansas Michigan Minnesota Nebraska Nevada New Mexico, Oklahoma Oregon, Rhode Island South Dakota Tennessee Texas and Washington

Reciprocity as to examination with the Iowa Basic Science Board is granted to those candidates having made original application to that board on or before June 1 1949 Candidates making application after that date and holding a certificate must meet the minimum requirements of the board i e that the candidate pass an examination in the basic sciences under a basic science board and that he pass at one sitting at least four of the five subjects given by the Colorado board, with subsequent passing of the fifth subject

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TABLE 35 —*Reciprocity, Endorsement, Waiver, or Exemption Policies of Basic Science Boards—Continued*

Credentials Accepted—Continued

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No reciprocity Endorsement of the certificate of the National Board of Medical Examiners and of state licenses of graduates of American medical schools

District of Columbia
Reciprocity has not been established The board may exempt an applicant All applications are considered on an individual basis

Florida
No reciprocity waiver or exemption policie

Iowa
On an individual basis applications for registration by exemption are considered on the basis of a license from a board of medical examiners the certificate of a basic science board and the certificate of the National Board of Medical Examiners

Michigan
Certificates issued by examination are accepted for registration by waiver from the basic science boards of Alaska Arkansas Colorado District of Columbia Minnesota Nebraska New Mexico Rhode Island, South Dakota Tennessee Texas Oklahoma Nevada Iowa Oregon, Washington and Wisconsin
Applicants who present certificates from the basic science boards of Washington and Oregon are examined in bacteriology
Applicants who present certificates from the Wisconsin Basic Science Board are examined in bacteriology and chemistry
The Michigan board may accept in lieu of its own examination the basic science portion of the examination given by any legally constituted examining or licensing board in the healing arts if such examination is equal or equivalent to the examination given by the Michigan Board

Minnesota
Reciprocity on an automatic basis with the basic science boards of Arkansas Colorado Nebraska Oregon and Tennessee (after Feb 9 1950) and the part 1 examination of the National Board of Medical Examiners
Reciprocity on an individual basis with the basic science boards of Alaska Arizona Connecticut Michigan Nevada New Mexico Oklahoma South Dakota and Texas
Reciprocity on an individual basis with the medical licensing boards of Indiana, Kansas Kentucky New York (subsequent to 1925) Oklahoma Texas Vermont Virginia and Washington
Partial credit granted for grades in certain subjects passed in examinations of medical licensing boards of Alabama Georgia Louisiana, New York (subsequent to 1925) North Carolina Wisconsin and the District of Columbia

Nebraska
No reciprocal agreements exist Waiver may be granted when certain requirements specified in the law have been met These requirements relate to age of the applicant moral character high school graduation or equivalent the fact of having passed an examination given by a basic science board or a licensing board in another state the requirements of which are not less than those of Nebraska and providing the other state concerned extends like privileges to those taking the examination in Nebraska States eligible for consideration are those states granting exemptions from examinations to those from Nebraska where the conditions of the laws and regulations have been met even though these conditions differ somewhat from the requirements of Nebraska States not eligible for such consideration are those states prohibited by law from granting waiver or reciprocity

Nevada
Reciprocity with basic science boards of Arizona Colorado Iowa Minnesota, New Mexico Oklahoma Oregon South Dakota Tennessee Texas and Washington Waiver with basic science boards of Arkansas Florida Michigan Nebraska and Wisconsin (partial waiver)

New Mexico
Reciprocity with basic science boards of Arizona Arkansas Colorado Iowa Michigan Minnesota New Mexico Oklahoma Oregon South Dakota Tennessee Washington and Wisconsin Waiver granted to doctors who have been in continuous practice for 30 years or more

Oklahoma
Applicants are reviewed on an individual basis A basic science certificate is not a prerequisite for licensure by reciprocity but is a requirement for licensure by examination

Oregon
Reciprocity on the basis of written examination with basic science boards of Arkansas Colorado Iowa Minnesota Nebraska Nevada New Mexico Oklahoma South Dakota Tennessee Texas Washington and Wisconsin

Rhode Island
Endorsement after oral examination with Massachusetts Board of Registration in Medicine and basic science boards of Colorado District of Columbia and Oklahoma

South Dakota
Reciprocity with basic science boards of Arizona Arkansas Colorado Iowa Michigan Minnesota Nebraska Nevada New Mexico Oklahoma Oregon Tennessee Texas Washington and Wisconsin

Tennessee
Reciprocity with basic science boards of Alaska Arizona Arkansas Colorado District of Columbia Michigan Minnesota Nebraska Nevada New Mexico Oklahoma Oregon South Dakota Texas Washington and Wisconsin

Texas
Reciprocity with the basic science boards of Alaska Arizona Arkansas Colorado Iowa Michigan Minnesota Nebraska Nevada Oklahoma Oregon South Dakota Tennessee Washington and partial reciprocity with Wisconsin

Washington
Reciprocity on the basis of written examination with all states having basic science boards Examination required in subjects not covered in Washington examination

Wisconsin
Waiver to commissioned officers of the armed forces or the Public Health Service to an applicant who has passed part 1 of the examination of the National Board of Medical Examiners to a physician licensed to practice medicine in a state not having a basic science law or licensed in a state before the establishment of a basic science board provided he has served an internship or has practiced for at least one year since the license was granted to a *physician licensed in Canada* and to *foreign trained physicians* holding an M D degree from an acceptable school who are licensed to practice medicine in the country in which the school attended is located
Reciprocity on the basis of written examination with all states having basic science boards

certification by one of these methods are outlined in table 35

The results of examinations given and the number of certificates issued on the basis of waiver, exemption, reciprocity or endorsement as reported by the basic science boards during 1956 are shown in tables 36 and 37 The laws do not specify that a candidate reveal his school of practice The basic science boards were developed for the purpose of insuring, insofar as possible, that all individuals who enter into the area of the healing arts have what is generally considered to be an adequate preparatory background Table 36 records the total number of candidates reported by the several boards as having been examined and the number who passed and failed No attempt has been made to differentiate the schools of the healing arts represented by the candidates examined or certified Seven states either had no failures or did not report

TABLE 36 —*Applicants Examined in Basic Sciences, 1956*

	Examined	Passed	Failed	Failed
Alaska	6	5	1	16 7
Arizona	77	7	0*	0 0
Arkansas	382	293	89	23 2
Colorado	160	160	0*	0 0
Connecticut	212	194	18	8 5
District of Columbia	14	12	2	14 3
Florida	882	882	0*	0 0
Iowa	192	192	0*	0 0
Michigan	391	269	122	31 2
Minnesota	237	237	0*	0 0
Nebraska	156	120	36	23 1
Nevada	74	43	31	42 5
New Mexico	94	94	0*	0 0
Oklahoma	192	110	82	42 7
Oregon	163	91	72	44 2
Rhode Island	157	110	47	29 9
South Dakota	96	49	47	49 0
Tennessee	133	133	0*	0 0
Texas	208	180	28	13 5
Washington	200	175	25	12 5
Wisconsin	449	308	141	31 4
Totals	4 475	3,734	741	16 6

Failure data not reported

figures for failures The percentage of candidates failing is given for those states that did submit these data

The 21 boards in operation in 1956 examined 4,475 candidates and granted certificates of proficiency in the basic sciences by written examination to 3,734 individuals In addition, as noted in table 37, there were 2,373 certificates issued by reciprocity, endorsement, exemption, or waiver by 18 boards The number of applicants registered with or without examination in 1956 was 6,107 Of these, Florida issued 882, Texas 714, Michigan 611, and Wisconsin 524 Other states certified fewer than 500

TABLE 37 —*Basic Science Certificates Issued by Examination Reciprocity, Endorsement, Exemption, or Waiver, 1956*

	Certified by		
	Examination	Reciprocity Endorsement Exemption or Waiver	Total Certified
Alaska	5	17	22
Arizona	77	154	231
Arkansas	293	44	337
Colorado	160	100	260
Connecticut	194	0	194
District of Columbia	12	146	158
Florida	882	0	882
Iowa	192	90	282
Michigan	269	342	611
Minnesota	237	155	392
Nebraska	120	42	162
Nevada	43	21	64
New Mexico	94	35	129
Oklahoma	110	1	111
Oregon	91	107	198
Rhode Island	110	0	110
South Dakota	49	20	69
Tennessee	133	123	256
Texas	180	534	714
Washington	175	226	401
Wisconsin	308	216	524
Totals	3 734	2 373	6 107

TABLE 38 —*Candidates for Basic Science Certification, 1927-1956*

	No of Boards	Examination			Reciprocity Endorsement Exemption or Waiver	Total Certified
		Passed	Failed	% Failed		
1927	5	294	33	10 0	27	321
1928	5	617	88	12 4	19	636
1929	7	641	93	12 6	75	716
1930	7	636	127	16 6	122	758
1931	7	634	153	19 4	141	775
1932	7	634	101	13 7	118	752
1933	8	557	104	15 7	131	688
1934	9	751	115	13 3	138	889
1935	10	794	162	16 8	114	908
1936	10	917	181	16 4	243	1 160
1937	12	1 102	242	18 0	202	1 304
1938	12	1 096	230	17 3	293	1 389
1939	14	1 110	249	18 3	1 021	2 131
1940	16	1 293	290	18 3	346	1 639
1941	17	1 751	373	17 5	353	2 104
1942	17	1 725	497	22 3	304	2 029
1943	18	2 309	410	15 1	382	2 691
1944	18	2 144	605	22 0	309	2 453
1945	18	2 339	634	21 3	584	2 923
1946	19	2 558	692	21 2	1 474	4 032
1947	19	2 633	905	25 6	960	3 593
1948	19	3 038	789	20 6	1 418	4 456
1949	20	3 656	1 515	29 5	1 480	5 136
1950	20	3 430	1 340	28 1	2 526	5 956
1951	21	3 198	735	18 7	1 939	5 137
1952	21	3 806	1,346	26 1	1 974	4 730
1953	21	3 854	1 220	24 0	1,899	5 753
1954	21	3 941	874	18 2	1 976	5 917
1955	21	3 474	447	11 1	1 936	5 410
1956	21	3 734	741	16 6	2 873	6 107
Totals		58 666	14 291	19 5	26 027	84 693

certified fewer than 500

In 30 years (table 38) 84,693 certificates in the basic sciences have been issued, 58,666 by examination and 26,027 by reciprocity, endorsement, exemption, or waiver The percentage of failures in this period was 19 5

The fees for certification in the basic sciences in the states requiring such certification are given in table 39 Examination and endorsement meetings are held in most instances semiannually, although some boards meet quarterly THE JOURNAL publishes semimonthly the future dates of examination and reciprocity meetings of all basic science boards

In 1956 there were 4,475 examinations given by basic science boards, 3,734 were successful and 741 examination results were reported as unsuccessful, thereby failing to give evidence of basic preparation adequate to qualify for further consideration for licensure Figures on how many individuals these 741 examination failures represent were not available for this report The several basic science boards differ widely from each other in the restrictions put upon the candidate with respect to repetition of examinations that have been failed and the accumulation of credit For example, an applicant in one state must pass at least four of the six required sections at one examination session If he does not pass at least four of them, he must then be reexamined in all six subjects when he again applies A poorly prepared applicant may continue to reapply and be reexamined at subsequent examinations Thus, one person could conceivably be reported as a failure on four different examinations during a calendar year In another state, which does not have such a limitation in its law, credit can be accumulated from one examination to the next The variances which exist in the evaluation methods of the states makes it impossible to analyze the figures on a comparable basis from state to state

TABLE 39 —*Basic Science Registration Fees*

Alaska	$25	Nebraska	$10[1]
Arizona	20	Nevada	25
Arkansas	20	New Mexico	50[4]
Colorado	25	*Oklahoma*	15[2]
Connecticut	10	Oregon	10
District of Columbia	25	Rhode Island	10
Florida	10	*South Dakota*	15[1]
Iowa	10	Tennessee	25[5]
Michigan	10[1]	Texas	15[1]
Minnesota	25[2]	Washington	10[1]
Wisconsin	10[3]		

Fee for registration without examination (1) $25 (2) $50 (3) $15 (4) $75 and (5) $10

Although it is recognized that the data presented may be useful to those seeking licensure in these states, it is advisable to supplement the information by direct communication with the basic science board The present executive corresponding officer of each of the 21 basic science boards is as follows

Arizona	Mr Herbert D Rhodes University of Arizona Tucson
Arkansas	Mr S C Dellinger Zoology Department University of Arkansas Fayetteville
Colorado	Dr Esther B Starks 1459 Ogden St Denver 18
Connecticut	Mrs Regina G Brown 258 Bradley St New Haven 10
District of Columbia	Mr Paul Foley 1740 Massachusetts Ave N W Washington 6
Florida	Mr M W Emmel Box 340 Gainesville
Iowa	Dr Ben H Peterson Coe College Cedar Rapids
Michigan	Mrs Anne Baker 116 Stevens T Mason Bldg W Michigan Ave Lansing 15
Minnesota	Dr Raymond N Bieter 105 Millard Hall University of Minnesota Minneapolis
Nebraska	Mr Husted K Watson Room 1009 State Capitol Building Lincoln 9
Nevada	Dr Donald C Cooney Box 9005 University Station Reno
New Mexico	Mrs Marguerite Cantrell Box 1522 Santa Fe
Oklahoma	Dr F F Lester 813 Braniff Bldg Oklahoma City
Oregon	Dr Earl M Pallett Secretary State Board of Higher Education Portland
Rhode Island	Mr Thomas B Casey 366 State Office Bldg Providence
South Dakota	Dr Gregg M Evans 310 E 15th St Yankton
Tennessee	Dr O W Hyman 62 S Dunlap St Memphis
Texas	Bro Raphael Wilson 407 Perry Brooks Bldg Austin
Washington	Mr Thomas A Carter Department of Licenses Capitol Building Olympia
Wisconsin	Mr William H Barber 621 Ransom St Ripon
Alaska	Dr R Harrison Leer Box 704 Alaska Office Bldg Juneau

NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners is a voluntary and unofficial examining agency, the purpose of which is to prepare and to administer qualifying examinations of such merit that legal agencies governing the practice of medicine within each state may in their discretion grant successful candidates a license without further examination

It is the function of the individual state medical licensing boards to determine who shall practice within their borders and to maintain high standards of medical practice in accordance with their own rules and regulations In recognition of the thoroughness and widely accepted standards of the National Board examinations its certificate is accepted as an adequate qualification by the medical licensing authorities of the states, the District of Columbia, and the territories with the following exceptions Arkansas, Florida, Georgia, Indiana, Louisiana, Michigan, North Carolina, and Texas The Georgia licensing board will accept certificates issued prior to October, 1953 The Michigan licensing board will accept applicants who have completed parts 1 and 2 prior to Nov 1, 1954, but requires a special written supplemental examination Supplemental oral examinations are required by the licensing boards of Illinois, Rhode Island, and Wyoming

The following boards of examiners of the basic sciences accept the examinations of the National Board in lieu of their own Alaska, Arkansas, Connecticut, Iowa, Minnesota, Nebraska, Tennessee, Wisconsin, and the District of Columbia Diplomates of the National Board are required to take an examination in the basic sciences before obtaining a medical license in Arizona, Colorado, Florida, Michigan, Nevada, New Mexico, Oklahoma, Oregon, Rhode Island, South Dakota, Texas, and Washington

The examinations leading to certification by the National Board are divided into three separate parts Parts 1 and 2, which are of the multiple choice type, may be taken by students during the course of their training in the medical school Each of the six examinations of part 1 and each of the five examinations of part 2 is developed by a separate committee which is appointed by the Board and which is composed of teachers and clinicians prominent in their own fields Whereas formerly the Educational Testing Service of Princeton N J helped in the development and analysis of the examinations of parts 1 and 2, all work pertaining to all aspects of the testing program, including scoring and statistical analysis is now carried on in the offices of the National Board The third, or final, part of the examination provides a total of seven hours for each candidate to demonstrate his ability to apply his knowledge of clinical problems in four major elements of general practice In each of these subjects

TABLE 40 —*National Board Examinations in Part 1 1922 1956*

Date	Total Examination	Passed	Incomplete	Failed	% Failed
June 1956	2 561	1 913	415	233	10 9
September 1956	914	762	95	57	6 9
Totals	3 475	2 675	510	290	10 8
1922	348	263	18	67	20 3
1923	437	349	7	81	18 8
1924	591	415	69	107	20 5
1925	608	400	50	158	28 3
1926	625	436	104	85	16 3
1927	702	452	159	91	16 8
1928	843	533	231	79	12 9
1929	1 096	675	331	90	11 8
1930	1 260	801	345	114	12 5
1931	1 277	755	425	97	11 4
1932	1 307	847	371	89	9 5
1933	1 234	782	316	136	14 8
1934	1 241	809	347	85	9 5
1935	1 261	782	410	69	8 1
1936	1 344	858	363	123	12 5
1937	1 435	871	415	149	14 6
1938	1 651	984	508	160	14 0
1939	1 733	1 048	460	225	17 7
1940	1 653	1 069	375	209	16 4
1941	1 640	1 087	346	207	16 0
1942	1 867	1 204	471	192	13 8
1943	2 656	1 441	962	253	14 9
1944	4 229	2 326	1 465	438	15 9
1945	3 865	2 106	1 475	284	11 8
1946	3 148	1 695	1 189	264	13 5
1947	3 514	1 844	1 352	318	14 7
1948	3 807	2 178	1 262	367	14 4
1949	3 823	2 337	1 243	243	9 4
1950	4 678	3 358	986	334	9 0
1951	4 590	3 223	1 038	329	9 3
1952	4 989	3 467	1 147	375	9 4
1953	4 278	2 866	980	432	13 0
1954	3 252	2 286	677	289	11 2
1955	3 196	1 735	1 173	288	14 2
1956	3 475	2 675	510	290	10 8
Totals	74 699	45 892	21 690	7 117	13 7

time is provided for the candidate to study a patient or clinical specimens He is then required to write an essay test based upon the patient or the clinical specimens that he has studied His essay paper is then reviewed by separate examiners in each subject After this, the examiners question the candidate in other aspects of the subject

TABLE 41 —*National Board Examinations in Part 2, 1922-1956*

Date	Total Examinations	Passed	Incomplete	Failed	% Failed
April 1956	1 890	1 867	3	20	1 1
June 1956	292	286	0	6	2 1
Totals	2 182	2 153	3	26	1 2
1922	109	90	0	19	17 4
1923	192	170	2	20	10 5
1924	267	227	0	40	15 0
1925	342	309	0	33	9 6
1926	381	334	1	46	12 1
1927	361	314	1	46	12 8
1928	410	371	1	38	9 3
1929	465	399	19	47	10 5
1930	620	543	7	70	11 4
1931	719	630	2	87	12 1
1932	732	674	0	58	7 9
1933	714	651	0	63	8 8
1934	633	583	0	50	7 9
1935	689	620	0	69	10 0
1936	768	716	2	50	6 5
1937	855	803	1	51	6 0
1938	861	815	0	46	5 3
1939	938	884	0	54	5 8
1940	1 028	963	9	56	5 5
1941	1 001	954	1	46	4 8
1942	1 072	1 031	0	41	3 8
1943	1 861	1 805	0	56	3 0
1944	1 405	1 350	0	55	3 9
1945	1 599	1 565	0	34	2 1
1946	1 825	1 782	0	43	2 4
1947	1 641	1 613	0	28	1 7
1948	1 742	1 725	0	17	0 9
1949	1 737	1 691	0	46	2 6
1950	1 863	1 837	0	26	1 3
1951	2 045	2 017	0	28	1 4
1952	2 017	2 001	0	16	0 8
1953	2 200	2 145	1	54	2 4
1954	2 258	2 169	26	63	2 8
1955	2 220	2 181	3	36	1 6
1956	2 182	2 153	3	26	1 2
Totals	39 752	38 115	79	1 558	3 9

Examinations in part 1 were held during 1956 in June and September, and in part 2 in April and June Part 3 of the examination is administered through subsidiary boards located in the major cities of the United States during the last two weeks of June of each year Where indicated, interim part 3 examinations will be organized by an individual subsidiary board during the course of the year The dates of all examinations are posted on medical school bulletin boards and published in THE JOURNAL and in The National Board Examiner, the official publication of the National Board of Medical Examiners

The National Board admits to its examination any student in good standing in approved medical schools in the United States and Canada The National Board does not, at the present time, admit to its examinations graduates of other medical schools Upon receipt of a request initiated by a state licensing board, a specialty board, or a medical school, an individual trained in a foreign medical school may be admitted to the National Board examinations in order to satisfy special requirements or regulations of the licensing board, specialty board, or the medical school He is not considered a candidate for a certificate but is admitted to the examination as a service to the agency requesting the service and the grades are sent only to the board or school concerned

The tables that are presented refer to the results of examinations in all three parts since 1922, including the number who passed and failed examinations and the number certified This is the 35th annual compilation of these statistics The board s first examination was given in October, 1916 From that date and up to and including a test given in June, 1921, 11 examinations were given and 268 candidates were certified Since 1922 the examination has been divided into three parts, which must be taken and completed in the following sequence part 1, a written examination in six basic science subjects, part 2, a written examination in five major clinical divisions and their component subjects or subdivisions, and part 3, a clinical and practical evaluation of the candidate s ability in observation, in diagnostic acumen, and in the principles of therapy, applicable to the four major elements of general practice, namely, clinical medicine, pediatrics, clinical surgery, and obstetrics and gynecology

TABLE 42 —*National Board Examinations in Part 3, 1922 1956*

Year	Total Examinations	Passed	Failed	% Failed
1922	22	22	0	0 0
1923	82	81	1	1 2
1924	126	120	6	4 8
1925	219	206	13	5 9
1926	255	243	12	4 7
1927	293	272	21	7 2
1928	322	306	16	5 0
1929	352	337	15	4 3
1930	420	401	19	4.5
1931	437	419	18	4 1
1932	550	522	28	5 1
1933	551	526	25	4 5
1934	567	548	19	3 4
1935	598	578	20	3 3
1936	576	547	29	5 0
1937	668	630	38	5 7
1938	706	682	24	3 4
1939	770	729	41	5 3
1940	792	771	21	2 7
1941	910	885	25	2 7
1942	1 054	1 041	13	1 2
1943	1 230	1 213	17	1 4
1944	1 168	1 146	22	1 8
1945	1 245	1 232	13	1 0
1946	1 634	1 613	21	1 2
1947	1 741	1 723	18	1 0
1948	1 715	1 700	15	0 9
1949	1 685	1 674	11	0 6
1950	1 752	1 736	16	0 9
1951	1 738	1 708	30	1
1952	2 128	2 036	92	4 3
1953	2 039	1 979	60	2 9
1954	2 133	2 052	81	3 8
1955	2 090	2 077	13	0 6
1956	2 085	2 072	13	0 6
Totals	34 653	33 827	826	2 3

Tables 40 and 41 record the results of examinations given in parts 1 and 2 during 1956 and for each year since 1922 The data shown in these tables represent examinations conducted rather than persons examined, and the figures thus include candidates who fail and are reexamined during the same year and those who may pass parts 1 and 2 in the same year

There were 3,475 examinations in part 1 given in 1956, 2,675 passed, and 290, or 10 8%, failed Incomplete examinations numbered 510 In part 2, 2,182 examinations were held, 2,153 passed, and 26, or 1 2% failed Three incomplete examinations were given

From 1922 to 1956, inclusive, a total of 74,699 examinations have been given in part 1 and 39,752 in part 2 The successful examinations totaled 45,892 in part 1 and 38,115 in part 2 In the 35-year period shown, there have been 7,117 failures in part 1 (13 7%) and 1,558 (3 9%) in part 2

In 1956, 2,085 tests were given in part 3, 2,072 passed, and 13 (0 6%) failed Results of examinations in part 3 in 1956 and in the 34 preceding years are given in table 42 In 35 years, 34,653 were tested, of whom 33 827 were granted the certificate of the board The percentage of failures in the board's final examination for the 35-year period was 2 3

The 2,072 physicians certified as diplomates in 1956 represented 64 medical schools in the United States and Puerto Rico, 9 in Canada, and 11 in other countries The school and the number of examinees from each are included in table 43

Table 43 –*Diplomates from Individual Medical Schools, 1956*

United States	
University of Arkansas	7
College of Medical Evangelists	31
Univ of Southern California	1
Stanford University	11
University of California L A	8
University of California, S F	4
University of Colorado	2
Yale University	75
Georgetown University	78
George Washington University	69
Howard University	5
Medical College of Georgia	1
Chicago Medical School	63
Northwestern University	51
Stritch School of Medicine	31
University of Chicago	60
University of Illinois	81
Indiana University	2
State University of Iowa	7
University of Kansas	4
University of Louisville	3
Tulane University	5
Johns Hopkins University	8
University of Maryland	6
Boston University	74
Harvard Medical School	109
Tufts College Medical School	112
University of Michigan	7
University of Minnesota	3
St Louis University	6
Washington University	18
Creighton University	9
University of Nebraska	3
Albany Medical College	52
State Univ of N Y Brooklyn	130
University of Buffalo	66
Columbia University	109
Cornell University	68
New York Medical College	122
New York University	135
University of Rochester	43
State Univ of N Y Syracuse	75
Duke University	9
University of Cincinnati	2
Western Reserve University	13
Ohio State University	2
University of Oklahoma	2
University of Oregon	16
Hahnemann Medical College	49
Jefferson Medical College	18
Temple University	43
University of Pennsylvania	33
Woman's Medical College	22
University of Pittsburgh	7
University of Tennessee	2
Vanderbilt University	1
Baylor University	1
University of Vermont	28
University of Virginia	1
Medical College of Virginia	6
University of Washington	2
University of Wisconsin	5
Marquette University	11
University of Puerto Rico	25
Total	1 994
Canada	
Univ of British Columbia	1
Dalhousie University	3
Queen's University	5
University of Ottawa	3
Univ of Western Ontario	1
University of Toronto	8
McGill University	36
University of Montreal	1
Laval University	1
Total	59
Foreign	
St John's University China	3
Natl College of Medicine China	3
National Kweiyang Medical College China	2
University of Havana Cuba	1
University of London England	1
University of Kiel Germany	1
National Univ of Ireland	2
Univ of Amsterdam Netherlands	1
Univ of Edinburgh Scotland	1
University of Geneva Switzerland	3
University of Lausanne Switzerland	1
Total	19

In 1956, there were 3,109 licenses to practice medicine issued by endorsement of the certificate of the National Board of Medical Examiners in 42 states, the District of Columbia, and the territories and outlying possessions The number registered by each of these licensing boards is recorded in table 44 There have been 35,428 licenses issued on the basis of endorsement of the board's certificate since 1915

Table 44 –*Licenses Granted on the Basis of National Board Certificates, 1956*

Alabama	6	New Hampshire	30
Arizona	11	New Jersey	194
California	400	New Mexico	5
Colorado	26	New York	800
Connecticut	270	North Dakota	3
Delaware	1	Ohio	106
District of Columbia	91	Oklahoma	11
Georgia	9	Oregon	22
Idaho	8	Pennsylvania	69
Illinois	114	Rhode Island	23
Iowa	8	South Carolina	6
Kansas	13	South Dakota	1
Kentucky	38	Tennessee	7
Maine	81	Utah	17
Maryland	98	Vermont	18
Massachusetts	275	Virginia	40
Michigan	45	Washington	64
Minnesota	69	West Virginia	10
Mississippi	6	Wisconsin	30
Missouri	37	Wyoming	3
Montana	8	Alaska Canal Zone Guam Hawaii and Puerto Rico	31
Nebraska	4		
Nevada	1		
			3 109

A number of medical schools use National Board examinations for their own purposes In some schools the entire second year class takes part 1 at the end of the second year, in others part 2 serves as a comprehensive examination at the end of the fourth year, in still other schools both parts 1 and 2 are taken by all students At the present time there are 35 medical schools in which 25 or more students take National Board examinations In 23 schools, the National Board examinations are required for the entire class for either part 1 or part 2, or both parts 1 and 2

The officers of the board are Walter A Bloedorn, M D , President, Creighton Barker, M D , Vice-President, John P Hubbard, M D , Executive Secretary and Treasurer, William V Clemans, Ph D , Director of Testing Services, Christian J Lambertsen, M D , Assistant Secretary, George D Ludwig, M D , Assistant Secretary, J S Rodman, M D , Honorary Medical Secretary, and Everett S Elwood, Consultant on State Board Relations

The address of the board is 133 S 36th St , Philadelphia 4

References

1 Forty-eight state boards, the District of Columbia, Hawaii, and Puerto Rico

2 J A M A **161:**371 (May 26) 1956

THE PRESIDENT'S PAGE

A MONTHLY MESSAGE

During the month of March I had the distinct good fortune to inspect medical installations of the U S armed forces in the Pacific area and to visit several medical schools and medical associations in the Far East It also was my pleasure to have Dr Leo Bartemeier, Chairman of the A M A 's Council on Mental Health, Rear Adm Thomas G Hays, M C, U S Navy, and Commander E W White, U S Navy, as my travel companions and advisers

My first-hand survey of the Navy medical facilities, as well as the Army and Air Force installations, convinced me that the health and welfare of our armed forces personnel are being handled carefully and expertly by the medical personnel assigned to that all-important task Specifically, (1) emergency medical facilities are excellent, and they are available almost immediately to the sick or injured, (2) good hospital care is an hour or less away for almost every man and woman serving in the Pacific area, and (3) expert medical care and the finest hospitalization in extreme and very serious cases are only a few hours away

In addition to the availability of facilities and medical personnel, I found the armed forces' physicians just as dedicated as civilian doctors in the United States In fact, I found that the service physician was ready and willing to meet almost any challenge and to render the best possible care even if facilities or equipment are not always readily available Indeed, I would regard the morale and dedication of the medical officers, nurses, and enlisted personnel as the finest I have seen anywhere

To parents, wives, relatives, and friends of members of the armed forces in the Pacific, I say You do not have to worry about medical care—quantity or quality—for servicemen It is the best possible, and all the needs of every serviceman can, and will, be met

I also am happy to report that medical personnel is trying to assist local populations in the care of their sick and injured, whenever and wherever possible I have seen this assistance being rendered fully and capably at hospitals and outpatient clinics Personally, I feel that our armed forces—particularly the medical personnel—have a great opportunity to promote good will and friendship between the people of the area and the people of the United States So it was gratifying to see so many service doctors spreading the humanitarianism so closely identified with the United States and the American medical profession

While I was on the Pacific inspection trip, I made approximately 20 talks to armed forces medical personnel, to students and faculty of medical schools, and to members of several medical associations The entire trip was a pleasant and enlightening experience, and the line officers were extremely helpful in providing us with comfortable, swift, and safe transportation A report of my findings is now in the hands of Adm B W Hogan, surgeon general of the U S Navy

As this is my last President's Page before the curtain falls on my term of office, I want to express my sincere appreciation to each and every member of the A M A for the confidence placed in me and for elevating me to medicine's highest office in the land

Whatever has been accomplished during my service to the A M A is the direct result of the efforts of hard-working physicians and staff personnel I claim no credit I merely am happy to have had the opportunity to work with so many capable persons everywhere in the country and to contribute my small portion to the betterment of the A M A and the medical profession

If I had to single out one principle that has guided me during my term, it would be Try to keep medicine as free and dedicated as you found it I hope every physician will remember this principle, and will make it his personal duty to carry on the heritage of medical freedom that is ours today Furthermore, it is the duty and responsibility of our profession to pass on to the younger and succeeding doctors the same privileges and opportunities to practice medicine that we have had Our freedom in exercising our best judgment and using our capabilities in the care of the sick must never be hindered or hampered The task of maintaining our traditions may not be easy, but it will be well worth the extra time we devote to this great cause

To all 160,000 A M A members, thank you for allowing me to serve the greatest medical organization in the world

DWIGHT H MURRAY, M D, Napa, Calif

ORGANIZATION SECTION

HEALTH IN SCHOOLS

How can educators cooperate to encourage widespread immunization against poliomyelitis? What is the viewpoint of representative physicians on competitive athletics in grade schools? How do the nation's no 1 teachers' and physicians' organizations feel about health education and physical education programs in all schools—from elementary grade level through college? These questions have been answered definitively and with official tone within the text of a dozen resolutions adopted recently by one of the oldest interprofessional organizations in America It has the long-breath title of Joint Committee on Health Problems in Education of the National Education Association and American Medical Association The group has been functioning continuously for 46 years—developing effective liaison, helping formulate policy, publishing appropriate materials, and serving as a board of review on matters related to health in our nation's schools

The five physician members, nominated by the A M A Board of Trustees, all have a keen interest in school problems The five N E A representatives, selected by their organization's president, are particularly concerned with the health of pupils One result of this intense dual approach is a combined and cohesive medical-educational view on school health matters At a meeting March 11, 12, and 13, the Joint Committee

—Planned to draw up a check list for local communities to evaluate their own school health programs

—Studied a progress report on a new volume, Healthful School Living"

—Discussed a report on dental health in schools with representatives of the American Dental Association

—Determined subcommittee progress on such topics as mental health in the classroom, health of school personnel, and health aspects of pupil transportation

(Reelected to a second term as Joint Committee chairman was Delbert Oberteuffer, Ph D , of the Ohio State University department of physical education A pediatrician from Fond du Lac, Wis, Dr E H Pawsat, was named vice-president, and Dr Donald A Dukelow, of the A M A headquarters staff, was elected secretary)

Publications and Resolutions

The fact that there is a keen interest among doctors and educators in all phases of school health is shown in the wide call for publications prepared by the Joint Committee "Healthful School Living," third of three basic books published in the past decade ("Health Education' and 'School Health Services' are the others), now rounds out all phases of the school health program Dozens of pamphlets have been published since 1920 by the Joint Committee—and republished as often as 10 times to meet the rising demand They have covered such varied subjects as school health policies, sex education, health appraisal, school lunch programs, sight and hearing conservation, the nurse in the school, classroom lighting, physical growth charts, fatigue, and sleep habits for children

Among the resolutions adopted at the March meeting were those

—Reemphasizing the need for adequate programs of health education and physical education in all schools

—Declaring that fitness covers all aspects of organic, psychological, and social growth—and is not "testable only by muscular strength, agility, or flexibility

—Sounding approval of an American Academy of Pediatrics report which recognizes the value of properly directed competitive sports for youth but condemns high pressure elements in athletics and body-contact sports (such as boxing and tackle football) for immature children

—'Strongly" urging that pupils at all grade levels be given Salk poliomyelitis vaccine, and that principals, teachers, and other school employees work with the medical profession to encourage broad community acceptance of this important preventive procedure '

—Urging widespread study and use of a newly rewritten yearbook entitled 'Fit to Teach" It now is in the final stages of preparation

—Commending the National Congress of Parents and Teachers for their promotion of a new program which tends to bring children and their parents into continual and personal contact with medical and dental resources of the community

Committees at Local Level

While physicians and educators in this national Joint Committee set the pace for better health in our schools, their actions alone do not form the driving force at classroom level Some 400 school health committees of county medical societies are at work day after day with teachers and principals across the land to lead the many health projects in communities

These activities range from medical examinations to health guidance in sports A statewide conference on physicians and schools in Connecticut brings together more than 200 doctors, public health officials, and educators Local medical societies sponsor similar joint sessions in Wisconsin and California And, in Montana, 11 cities take part in a "circuit' type of program featuring representatives of these professions as they cope with specific situations in each of the cities

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Dwight H. Murray, M.D., *Napa, Calif.*

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The five physician members, nominated by the A M A Board of Trustees, all have a keen interest in school problems The five N E A representatives, selected by their organization's president, are particularly concerned with the health of pupils One result of this intense dual approach is a combined and cohesive medical-educational view on school health matters At a meeting March 11, 12, and 13, the Joint Committee

–Planned to draw up a check list for local communities to evaluate their own school health programs

—Studied a progress report on a new volume, 'Healthful School Living'

—Discussed a report on dental health in schools with representatives of the American Dental Association

–Determined subcommittee progress on such topics as mental health in the classroom, health of school personnel, and health aspects of pupil transportation

(Reelected to a second term as Joint Committee chairman was Delbert Oberteuffer, Ph D , of the Ohio State University department of physical education A pediatrician from Fond du Lac, Wis, Dr E H Pawsat, was named vice-president, and Dr Donald A Dukelow, of the A M A headquarters staff, was elected secretary)

Publications and Resolutions

The fact that there is a keen interest among doctors and educators in all phases of school health is shown in the wide call for publications prepared by the Joint Committee "Healthful School Living," third of three basic books published in the past decade ('Health Education' and "School Health Services' are the others), now rounds out all phases of the school health program Dozens of pamphlets have been published since 1920 by the Joint Committee—and republished as often as 10 times to meet the rising demand They have covered such varied subjects as school health policies, sex education, health appraisal, school lunch programs, sight and hearing conservation, the nurse in the school, classroom lighting, physical growth charts, fatigue, and sleep habits for children

Among the resolutions adopted at the March meeting were those

–Reemphasizing the need for adequate programs of health education and physical education in all schools

–Declaring that fitness covers all aspects of organic, psychological, and social growth–and is not "testable only by muscular strength, agility, or flexibility"

–Sounding approval of an American Academy of Pediatrics report which recognizes the value of properly directed competitive sports for youth but condemns high pressure elements in athletics and body-contact sports (such as boxing and tackle football) for immature children

–"Strongly' urging that pupils at all grade levels be given Salk poliomyelitis vaccine, and that principals, teachers, and other school employees work with the medical profession to encourage broad community acceptance of this important preventive procedure'

–Urging widespread study and use of a newly rewritten yearbook entitled 'Fit to Teach" It now is in the final stages of preparation

–Commending the National Congress of Parents and Teachers for their promotion of a new program which tends to bring children and their parents into continual and personal contact with medical and dental resources of the community

Committees at Local Level

While physicians and educators in this national Joint Committee set the pace for better health in our schools, their actions alone do not form the driving force at classroom level Some 400 school health committees of county medical societies are at work day after day with teachers and principals across the land to lead the many health projects in communities

These activities range from medical examinations to health guidance in sports A statewide conference on physicians and schools in Connecticut brings together more than 200 doctors, public health officials, and educators Local medical societies sponsor similar joint sessions in Wisconsin and California And, in Montana, 11 cities take part in a 'circuit' type of program featuring representatives of these professions as they cope with specific situations in each of the cities

The A M A Bureau of Health Education says, "There is evidence of increased interest and participation by medical societies in joint activity toward program planning and policy making in school health, in cooperation with other professions concerned with the health problems of children of school age' But there is more than immediate health problems involved in this interprofessional accord Looming large is the broader concept of preventive health for years to come throughout the nation What better place is there than a school to appraise the health of groups of children on a continuing basis? What better place could show, by example and precept, how better health can mean better students and, ultimately, better citizens?

FEDERAL MEDICAL LEGISLATION

First Session, 85th Congress

National Library of Medicine

Representative Collier (R, Ill), in H R 2413, has introduced a bill which would create a National Library of Medicine to be located in Chicago Books, collections, records, and equipment from the Armed Forces Medical Library would be turned over to the new library The measure creating such a library, under the jurisdiction of the Public Health Service, became public law in August, 1956 Equipment, books, and collections from the Armed Forces Medical Library were transferred to it The site of the new library will be selected by the Board of Regents This bill was referred to the House Administration Committee

Federal Advisory Council of Health

Representative Frelinghuysen (R, N J), in H R 2435, would establish 'in the Executive Office of the President, a Federal Advisory Council of Health to be composed of four persons who are members of the medical profession and three persons with distinguished records in fields other than medicine, to be appointed by the President, and to hold office at his pleasure" The function of the council would be

First Make a continuous evaluation of and recommendations as to policies and programs relating to Federal medical care and national health

'Second Advise on measures to assure adequate health manpower and hospital facilities for the Nation s health

Third Review the various proposals and programs relating to hospital construction involving Federal funds, including Federal grants

Fourth Advise with respect to the coordination of regional hospital services of all departments and agencies in the executive branch of the Government

"Fifth Advise with respect to more systematic cross-servicing between the various Federal medical agencies

"Sixth Advise upon measures for the adequate training and selection of the medical staffs of all Federal services

"Seventh Advise the executive departments and agencies on all Federal medical policies and programs

"Eighth Advise the Selective Service System on the mobilization of medical personnel

"Ninth Advise concerning systems of project grants for health-research programs of the Federal Government

'Tenth Report periodically to the President and to the executive departments and agencies involved, on the success or failure of Federal health programs and policies

'Eleventh Report to the President and advise the Bureau of the Budget and the Congress with respect to such matters as they may request

"Twelfth Assist the Secretary of Defense to develop recommendations for revision of the Selective Service Act, as amended, so as to effect maximum utilization of medical personnel

Thirteenth Advise the Administrator of the Veterans Administration with respect to recommendations for closing certain hospitals belonging to such Administration

"Fourteenth Review the manner in which the hospital facilities of the Veterans' Administration are being used and make recommendations for the disposal of more economic utilization of such facilities

Fifteenth Advise the President, or any committee established or designated by him, with respect to the policies, programs, and operations of the Food and Drug Administration and the Agricultural Research Service in the Department of Agriculture, with a view to eliminating those which are no longer necessary under present conditions and eliminating conflicts and overlapping of jurisdiction and functions between departments

Sixteenth Make recommendations to improve preventive health services, including those rendered in connection with medical care of Federal beneficiaries, in the interests of both health conservation and long range economy

'Seventeenth Review and make recommendations to the President with respect to the health research programs of the Federal Government

'Eighteenth Examine the means of establishing cooperative planning among the Federal agencies which provide psychiatric care

'Nineteenth Service as consultant to the President s adviser on personnel with respect to making more uniform the personnel systems of the several Federal agencies using health personnel"

This measure was referred to the Committee on Interstate and Foreign Commerce

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From the Washington Office of the American Medical Association

Registration and Reporting of Welfare and Pension Plans

A group of bills similar to each other have been introduced requiring the registration and reporting of receipts, income, disbursements, assets, liabilities, and financial activities of health, welfare, and pension plans The reports would be made public under regulations prescribed by the Secretary of Labor or the Federal Security and Exchange Commission The bills are H R 2437 and H R 6014, by Representative Frelinghuysen (R , N J), H R 4653, by Representative Green (D , Ore), H R 5994, by McConnell (R , Pa.), H R 6513, by Representative Ruess (D , Wis), S 1121, by Senator Douglas (D , Ill) for himself and Senators Murray (D , Mont) and Ives (R , N Y), and S 1145 by Senator Ives (R , N Y) for himself and Senators Allott (R , Colo) and Smith (R , N J) The House measures were referred to the Committee on Education and Labor The Senate bills were referred to the Committee on Labor and Public Welfare

Poliomyelitis Vaccine Assistance Act Amendment

Representative Bennett (D , Fla), in H R 2536, would authorize and direct the surgeon general to reallocate unused allotments of those states which do not utilize their share of the federal grants for Salk vaccine that expire June 30, 1957 He would also allow those eligible to include persons up to 40 years of age and pregnant women This measure was referred to the Interstate and Foreign Commerce Committee

Salk Vaccine Control by HEW

Representative Green (D , Ore), in H J Res 281, would authorize the Secretary of Health, Education, and Welfare to exercise control of the distribution, use, and selling price of poliomyelitis vaccine to Dec 31, 1957 This bill contains a statement that 'the demand for poliomyelitis vaccine far exceeds the supply" Control within each state would be placed in the state health department The vaccine purchased or contracted to be purchased by the National Foundation for Infantile Paralysis would not be subject to the provisions of this resolution as long as such supply was owned and distributed by the foundation This bill was referred to the Committee on Interstate and Foreign Commerce

Water Pollution Control

Representative Rogers (D , Colo) in H R 2834, and Senators Allott (R , Colo) and Carroll (D , Colo), in S 1262, have introduced identical measures that would amend the Water Pollution Control Act to remove the maximum dollar limitation on grants for construction of sewage treatment works It would, however, retain the 30% federal share limitation These measures were referred to the Committee on Public Works

Sanitation Facilities and Services for Indians

Representative Udall (D , Ariz), in H R 2894, and Senator Chavez (D , N Mex), in S 1498, have introduced measures identical to H R 246, by Representative Judd (R , Minn), previously reported, which would authorize the surgeon general of the Public Health Service, to conduct surveys, until June 30, 1961, as to the need for sanitary facilities and measures, and to develop projects for the construction of such facilities among the Indian population The Indian tribes would be encouraged to assume or share the responsibility for the construction and operation of the facilities The measures state, The Surgeon General shall consult with, and encourage the participation of, States and political sub-divisions thereof, and the government of the Territory of Alaska in carrying out the provisions of this Act' These measures were referred to the respective committees on Interior and Insular Affairs

Repeal of Alaska Mental Health Enabling Act

Representative O'Neill (D , Mass), at the request of a constituent, has introduced H R 3075, a measure which would repeal the Alaska Mental Health Enabling Act (Public Law 830 of the 84th Congress) This measure has been referred to the Committee on Interior and Insular Affairs

Medicare for Certain Retired Military Personnel

Representative Boggs (D , La), in H R 3208, and Senator Kefauver (D , Tenn), in S 1259, have introduced identical measures that would amend the Dependents Medical Care Act to entitle certain retired members of the uniformed services to the same benefits as dependents of the uniformed services The retired member would have to be 65 years of age or have over 20 years or more of active duty Under the present law, retired members of the armed forces may receive medical care in military facilities Under the proposed bills, they could receive care in civilian facilities also These bills have been referred to the respective Armed Services committees

U S Armed Forces Medical Academy

Senator Capehart (R , Ind), in S 596, has introduced a bill identical to H R 1055, by Representative Bennett (D , Fla), that would establish an Armed Forces Medical Academy, similar to the Army, Navy, and Air Force military academies These bills were referred to the Armed Services Committee

Child Health and Welfare Amendments of 1957

Representative Bennett (D , Fla), in H R 3359, would amend the child welfare provisions of the Social Security Act to authorize the earmarking of up to 12 5% the annual child health and welfare appropriations for special projects of regional or national significance Such project grants could be made not only to state agencies administering state plans but also to public and nonprofit institutions of higher education or research with the cooperation of the state agency At the present time grants are given to states only This was referred to the Ways and Means Committee

National Multiple Sclerosis Institute

Representative Hoeven (R, Iowa), in H R 3485, proposes to establish a National Multiple Sclerosis Institute in the United States Public Health Service The institute would "provide for research and investigation with respect to the cause, prevention, and treatment of multiple sclerosis and related neurological diseases There is no definition of the relationship of the present National Institute of Neurological Diseases and Blindness to the proposed Multiple Sclerosis Institute The National Institute of Neurological Diseases and Blindness at present performs all of the functions outlined in the proposed bill The bill was referred to the Committee on Interstate and Foreign Commerce

Industrial Safety

Senators Smith (R, N J), and Ives (R, N Y), in S 815, and Representative Frelinghuysen (R, N J), in H R 6045, have introduced identical bills that propose "to provide for assistance to States in their efforts to promote, establish, and maintain safe workplaces and practices in industry, thereby reducing human suffering and financial loss and increasing production through safeguarding available manpower

According to these bills the Secretary of Labor would administer allotments to states and the state labor agency would supervise the state safety plans The federal funds would be apportioned on a formula based on (1) the number of wage earners, (2) special hazards, (3) financial needs of respective states, and (4) such other factors as the Secretary finds relevant Payments to states for the first two years could not exceed 75% of the total expenditure, for the second two years, 66 6%, and, thereafter, not over 50% of the total expenditures under state plans The coal industry is covered by another provision and would not be included in this program There was no mention in the proposal of the state health agency or of physicians The Senate measure was referred to the Labor and Public Welfare Committee and the House measure to the Committee on Education and Labor

National Compulsory Health Insurance

Senator Murray (D, Mont), in S 844, and Representative Dingell (D, Mich), in H R 3764, have introduced identical measures that propose to establish a national program of compulsory health insurance It would be financed by a 3% tax on wages up to $6,000 annually plus up to 1% of wages from the U S Treasury The participants would be furnished medical and dental care and home nursing services up to 60 days, except for nervous or mental diseases or tuberculosis State agencies would make agreements with physicians, hospitals, and other providers of care to provide medical services, or the states could employ voluntary groups providing care or could utilize various health plans Payment could be made to physicians on a fee-for-services, per capita, or salary basis, or a combination of any two of these three methods In cases of hospitals, payment would be made on the basis of reasonable cost Providers of care could terminate an agreement after reasonable notice, could carry on their private practice, and would also have the right to accept or refuse patients

Five-tenths per cent of the cost of the total health program would be authorized for grants to public and nonprofit institutions or schools for training health personnel that are needed The Senate bill was referred to the Committee on Labor and Public Welfare and the House measure to the Committee on Interstate and Foreign Commerce

United States Nursing Academy

Senator Ives (R, N Y), in S J Res 30, proposes to establish a United States Academy of Nursing to furnish 'an adequate and continuous flow of young women trained in the profession of nursing and qualified to meet the needs of the armed services" The Secretary of Defense would select one "cadette' for each member of Congress from among nominees submitted by the member The President would appoint 30 cadettes' annually Graduates of the academy would be required to serve not less than three consecutive years in the armed forces This proposal was referred to the Committee on Armed Services

Tax Credit for Educational Expenses

Senator Humphrey (D, Minn), in S 868, and Representative Roosevelt (D, Calif), in H R 4597, would provide that in individual shall be allowed, as credit against his income tax, 30% of the aggregate amount paid during the taxable year to institutions of higher education as tuition or fees either for himself or any individual This allowance is against the income tax imposed and not against the net income upon which the income tax is based The Senate bill was referred to the Committee on Finance and the House measure to the Committee on Ways and Means

Representatives Perkins (D, Ky), in H R 5684, and Rhodes (D, Pa), in H R 4594, have introduced essentially identical measures Both measures were referred to the Committee on Ways and Means

Representative Jackson (R, Calif) has introduced a similar measure, H R 4396, with the exception that the tax credit "shall not exceed $450 on account of such cost of education paid by the taxpayer for the education of any one person, but the total credit allowed shall be the sum of the credits on account of the payments made by the taxpayer for the education of himself and for the education of other persons" This bill was referred to the Committee on Ways and Means

Tax Deduction for Educational Expenses

Representative Rodino (D, N J), in H R 4419, would allow a deduction from gross income in calculating income tax, for educational expenses incurred in the pursuit of education of a dependent at a college or university, including maintenance while pursuing such education This exemption would not be limited to the standard $600 per year exemption

Representative Fino (R, N Y), in H R 5469, would allow a deduction from the gross income for tuition paid for dependents at any level of education, elementary, secondary, or college

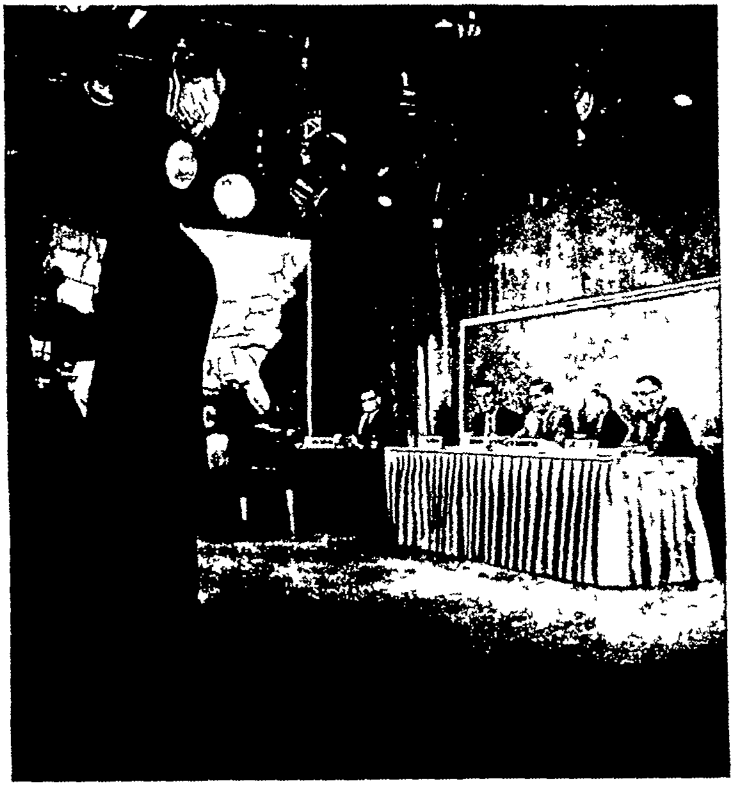
Representative Jennings (D, Va), in H R 5877, would allow the taxpayer an additional income tax exemption for a spouse or dependent who is a student The exemption would be valid when the taxpayer pays over half of the educational expenses incurred by such spouse or dependent during the calendar year in which the taxable year of the taxpayer begins These bills have been referred to the Ways and Means Committee

VIDEO LINKS FIVE MEDICAL MEETINGS

Some 2,000 physicians attending their annual medical association meetings in five states last month were linked as participants in a closed-circuit telecast exploring "The Physician and Emotional Disturbance" The hour-long postgraduate seminar on May 6 connected meetings in Florida, Kansas, Louisiana, Oklahoma, and North Carolina to five authorities on mental health in a Chicago television studio A moderator in each convention city was in two-way audio communication with panel members as they were viewed on separate 9-by-12 ft television screens Questions from the various meeting halls were heard in the studio and answered immediately

This "Videclinic" was presented by the Council on Mental Health of the American Medical Association and the five state societies, in cooperation with Smith, Kline & French Laboratories The program centered upon what the physician in general practice can do for the many patients who come to him with mild emotional disturbances or psychosomatic conditions Discussion was sparked by motion picture scenes of a patient describing his case to an inquiring family physician

Dr Leo H Bartemeier, Chairman of the A M A Council, was moderator of the panel Other panel members were Dr C Knight Aldrich, head of the University of Chicago, department of surgery, Dr E I Baumgartner, Secretary of the A M A Section on General Practice, Dr C H Hardin Branch, head of the University of Utah psychiatry department, and Dr Andrew S Tomb, chairman of the American Academy of General Practice liaison committee with the American Psychiatric Association



The Chicago "Videclinic" in action for five state medical association meetings last month (states shown on wall map) Moderator Dr Bartemeier is at left Other panelists are Drs Aldrich, Branch, Baumgartner, and Tomb Silhouetted at left is announcer

TRIP TO OIL REFINERY DISPENSARY

The medical department, Esso Standard Oil Company, will sponsor a field trip to the company's Bayway Refinery on one afternoon of the A M A meeting in New York In addition to a plant dispensary visit, a brief tour of refinery operations will be offered, emphasizing various aspects of environmental hygiene The number of visitors will be limited, and requests will be honored on a first-come, first-served basis Physicians who are interested are urged to communicate in advance with Leo Wade, Medical Director, Esso Standard Oil Company, 15 W 51 St, New York 19 Transportation will be provided

MEDICINE AND THE LAW

BLOOD TESTS FOR INTOXICATION UPHELD BY UNITED STATES SUPREME COURT

While driving a pickup truck on the highways of New Mexico, Paul H. Breithaupt, the petitioner, was involved in a collision with a passenger car. Three occupants of the car were killed, and he was seriously injured. A pint whiskey bottle, almost empty, was found in the glove compartment of the pickup truck. Breithaupt was taken to a hospital, and, while he was unconscious in the emergency room, the smell of liquor was detected on his breath. A state patrolman requested that a sample of Breithaupt's blood be taken. While he was still unconscious, an attending physician withdrew a sample of about 20 cc. of blood with a hypodermic needle. This sample was delivered to the patrolman, and subsequent laboratory analysis showed this blood to contain about 0.17% alcohol.

Breithaupt was thereafter charged with involuntary manslaughter. Testimony regarding the blood test and its result was admitted into evidence at trial over Briethaupt's objection. This included testimony of an expert that a person with 0.17% alcohol in his blood was under the influence of intoxicating liquor. Breithaupt was convicted and sentenced for involuntary manslaughter. He did not appeal the conviction. Subsequently, however, he sought release from his imprisonment by a petition for a writ of habeas corpus to the Supreme Court of New Mexico. That court denied the writ, and Breithaupt appealed to the United States Supreme Court. He contended that his conviction, based on the result of the involuntary blood test, deprived him of his liberty without that due process of law guaranteed him by the 14th amendment to the United States Constitution. It was argued on behalf of Breithaupt that the result of the blood test constituted an unreasonable search and seizure and that the introduction of the test result compelled him to be a witness against himself.

Breithaupt urged that the conduct of the state officers offends that 'sense of justice' of which the Court spoke in *Rochin* v. *California* (342 U. S. 165 [1952]). In that case state officers broke into the home of the accused and observed him place something in his mouth. The officers forced open his mouth after considerable struggle in an unsuccessful attempt to retrieve whatever was put there. A stomach pump was later forcibly used and among the matter extracted from his stomach were found narcotic pills. The Supreme Court there held that "this course of proceeding by agents of government to obtain evidence is bound to offend even hardened sensibilities." The conviction in the Rochin case was set aside because such conduct 'shocked the conscience' and was so "brutal" and "offensive" that it did not comport with traditional ideas of fair play and decency and therefore was offensive to due process.

However, in a 6-to-3 decision [1] the majority of the Supreme Court held that there was nothing comparable here to the facts in the Rochin case. The Court was of the opinion that basically the distinction rests on the fact that there is nothing "brutal" or "offensive" in the taking of a sample of blood when done, as in this case, under the protective eye of a physician. The Court said that, although Breithaupt was unconscious when his blood was taken, the absence of conscious consent, without more, does not necessarily render the taking a violation of constitutional right. Justice Tom Clark, who stated the opinion of the majority, went on to say:

> It might be a fair assumption that a driver on the highways, in obedience to a policy of the State, would consent to have a blood test made as a part of a sensible and civilized system protecting himself as well as other citizens not only from the hazards of the road due to drunken driving, but also from some use of dubious lay testimony. In fact, the State of Kansas has by statute declared that any person who operates a motor vehicle on the public highways of that State shall be deemed to have given his consent to submit to a chemical test of his breath, blood, urine, or saliva for the purpose of determining the alcoholic content of his blood. If, after arrest for operation of a motor vehicle while under the influence of intoxicating liquor, the arresting officer has reasonable grounds for the arrest, and the driver refuses to submit to the test, the arresting officer must report this fact to the proper official who shall suspend the operator's permit.

The Court concluded, in affirming the decision of the Supreme Court of New Mexico, that a blood test taken by a skilled technician is not such "conduct that shocks the conscience" or such a method of obtaining evidence that it offends a "sense of justice."

> As against the right of an individual that his person be held inviolable, even against so slight an intrusion as is involved in applying a blood test of the kind to which millions of Americans submit as a matter of course nearly every day, must be set the interest of society in the scientific determination of intoxication, one of the great causes of the mortal hazards of the road. And the more so since the test likewise may establish innocence, thus affording protection against the treachery of judgment based on one or more of the senses.

In his dissenting opinion, Chief Justice Warren observed:

> Since there clearly was no consent to the blood test, it is the nature of the invasion of the body that should be determinative of the due process question here presented. We should, in my opinion, hold that due process means at least that law-enforcement officers in their efforts to obtain evidence from persons suspected of crime must stop short of bruising

> the body breaking skin, puncturing tissue or extracting body fluids, whether they contemplate doing it by force or by stealth

In a separate dissenting opinion, Justice Douglas took this position, in which he was joined by Justice Black

> As I understand today's decision there would be a violation of due process if the blood had been withdrawn from the accused after a struggle with the police But the sanctity of the person is equally violated and his body assaulted where the prisoner is incapable of offering resistance as it would be if force were used to overcome his resistance In both cases evidence is used to convict a man which has been obtained from him on an involuntary basis And if the decencies of a civilized state are the test, it is repulsive to me for the police to insert needles into an unconscious person in order to get the evidence necessary to convict him, whether they find the person unconscious give him a pill which puts him to sleep, or use force to subdue him

References

1 *Paul H Breithaupt, Petitioner, v Morris Abrams, Warden,* 77 Sup Ct 69

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

POSTGRADUATE COURSES

The following postgraduate courses, not previously listed in THE JOURNAL, have been reported to the Council

A five-day lecture program on pediatrics will be presented June 11 to 14 at the University of California School of Medicine, San Francisco Topics will include endocrinological and growth problems, steroid therapy, obesity, newer etiological agents of childhood infectious disease, status of poliomyelitis vaccine, purpura, congenital heart disease, and pediatric dermatology The fee is $60 Information may be obtained from Dr Seymour M Farber, University of California Medical Extension, Third and Parnassus avenues, San Francisco 22

On June 21 and 22, the University of California Extension and the University of California School of Medicine at Los Angeles will present a course on hospital disaster plans at the University of California Medical Center, Los Angeles The course is sponsored by Medical Education for National Defense (MEND), hence there will be no fee Topics of the course include the role of the individual hospital in statewide disaster planning, hospital disaster plans, public health problems in episodes of natural disaster, and resuscitation of large numbers of seriously injured people Guest faculty will include medical officers from military medical centers Physicians, hospital personnel, and others interested in attending the two-day conference should obtain registration blanks from Dr Thomas H Sternberg, Assistant Dean for Postgraduate Medical Education, University of California Medical Center, Los Angeles 24

The University of Mississippi School of Medicine and the Mississippi Academy of General Practice are co-sponsoring a one-day symposium on diarrhea, June 13, at the University Medical Center in Jackson There is no registration fee for this lecture and open-question-period course The faculty will include guest instructors from other medical centers

A 1-day 6-hour course, Clinical Cardiology, for physicians in general practice and part-time specialty practice will be offered June 3, by the University of Washington School of Medicine, Seattle, for a fee of $20 Educational methods used will include patient demonstration, seminar, panel discussion, lecture, and open question periods There is no limit placed upon the number of enrollments

Also at the University of Washington School of Medicine, there will be a 3-day 15-hour course, the Chemotherapy of Malignancy, beginning Aug 8, 1957, for a fee of $25 This entirely lecture course is designed both for physicians in general practice and for those in full-time specialty practice

A six-month postgraduate course, Physical Medicine and Rehabilitation, will begin July 1, 1957, at the Highland View Cuyahoga County Hospital, Cleveland, in cooperation with Western Reserve University This course is designed for specialists in physical medicine as well as for those physicians now in residency training in this field It will consist of three sections Section 1, continuing for six weeks, will include 42 hours of lecture, 24 hours of conference, and 114 hours in wards and clinics Each student's program will be planned individually so that he may concentrate his nondidactic training hours on those subjects most closely relating rehabilitation to his own private practice or study Section 2, lasting 12 weeks, will include 64 hours of lecture, 72 hours of conferences, 162 hours in wards and clinics, and 54 hours in affiliated facilities Section 3, lasting 8 weeks, will include 32 hours of lecture, 40 hours of conferences, and 168 hours in wards and clinics Inquiries should be addressed to Dr Charles Long II, Department of Physical Medicine and Rehabilitation, Highland View Cuyahoga County Hospital, Harvard Rd, Cleveland 22

MEDICAL NEWS

CALIFORNIA

Technicians Symposium—University of California Extension will hold its sixth annual medical technicians symposium June 22-23 in the Life Science Building Auditorium at University of California, Los Angeles Subjects to be covered will be Techniques and Theory of Urine Examinations,' by Dr Ralph Goldman, Veterans Administration Hospital, Sepulveda, "Enteric Bacteriology, by Dr Charles M Carpenter, Los Angeles, and 'Advances in Blood Clotting Mechanism Techniques by Dr Samuel I Rapaport, Veterans Administration Hospital, Long Beach Fee for the conference will be $20 Information is available at offices of University of California Extension (Medical), Los Angeles 24

Personal—Dr Jerome W Shilling, was made president of the Industrial Medical Association at the annual meeting in St Louis He has been in charge of the medical department for the Pacific Telephone and Telegraph Company since 1931 ——The Association of State and Territorial Health Officers has conferred the Arthur T McCormack award on Dr Wilton L Halverson, Los Angeles (Glendale), former California State Director of Public Health, and professor emeritus, University of California, in recognition of his 'distinguished service in the fields of local, state and international health" Dr Halverson is a past-president of the Association of State and Territorial Health Officers

DISTRICT OF COLUMBIA

Freedmen's Hospital Alumni Meeting—The 35th annual meeting of the Association of Former Internes and Residents of Freedmen's Hospital will be held at the hospital June 4-6 The scientific meetings and exhibits will be in the auditorium of the Biology Building of Howard University The program committee consists of Drs Clarence S Greene, chairman, Mitchell W Spellman, Walter L Henry Jr , Coleridge M Gill, and Albert R Hughes More than 1,000 physicians have received their hospital training at Freedmen s Hospital during the past 63 years

Establish New Hospital Departments—Dr John M Orem, president, board of trustees, Sibley Memorial Hospital, announced the establishment of two new departments for the proposed new Sibley Hospital The units, not originally included in building plans, are a department of ophthalmology under Dr William M Hart, clinical associate professor of ophthalmology, Georgetown University School of Medicine, and a department of psychiatry under Dr Zigmond M Lebensohn, associate professor of psychiatry, Georgetown University School of Medicine Sibley Memorial Hospital, which will be a 350-bed hospital and has become an integral part of the American University, will have the seventh floor of its new building given to the two projected units The arrangements will make possible a training program for eye surgeons The psychiatry unit will have 28 beds

ILLINOIS

Telecasts on Health and the Weather—A new television program, "How to Live with the Weather," was recently begun at the University of Illinois, Urbana, on the university television station WILL-TV Dr Frederick Sargent II, associate professor, department of physiology, gives the weather forecast twice a week and then discusses the relation of the coming weather to human health and behavior His comments are drawn in part from folklore selected to fit the forecast and he provides the basis of each proverb given When the weather is not going to change appreciably, Dr Sargent deals with general topics such as clothing, ventilation, air-conditioning, history, physiology of heat regulation, spring fever, and the like

Chicago

Michael Reese Alumni Meet—The annual reunion of the Michael Reese Hospital Alumni Association will be held May 31 The program will include morning clinics and lunch at Michael Reese Hospital and a banquet at the Furniture Club in the evening (cocktail party at 6 30 p m) For information write Michael Reese Hospital Alumni Association, 29th Street and Ellis Avenue, Chicago 16

Hospital News—Mercy Hospital announced receipt of $84,950 from the Ford Foundation recently, representing the final payment in the foundation's nationwide hospital grants program In June, 1956, Mercy Hospital received a similar grant of $84,950, constituting the first half of the total grant given the hospital by the foundation Under the 200 million dollar hospital program announced on Dec 12, 1955, Mercy Hospital became one of many Illinois hospitals to share in the grant

MASSACHUSETTS

Dr Shattuck Honored—The Government of Cuba has presented to Dr George C Shattuck, Boston, the National Order of Merit Carlos J Finlay in the grade of Commander The Cuban National Order of Merit Carlos J Finlay was established by Presidential Decree in 1928, to honor the memory of the Cuban scientist, Carlos J Finlay The order is given to persons of any nation who have rendered outstanding service to the cause of sanitation and public welfare of the Republic of Cuba Each year on Dec 3, the birthdate of Dr Finlay, awards are made in a ceremony held in the Academy of Sciences in Havana

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Physicians are invited to send to this department items of news of general interest, for example those relating to society activities, new hospitals education and public health Programs should be received at least three weeks before the date of meeting

MICHIGAN

Society News—At the recent annual meeting of the Detroit Dermatological Society, the following officers were elected president, Dr Coleman Mopper, president-elect, Dr George B Sexton, secretary-treasurer, Dr Alice E Palmer, recorder Robert E Burns All are residents of Detroit, except Dr Sexton, who is a resident of London, Ontario Canada

Annual Clinic Day—The eighth annual Clinic Day sponsored by Bon Secours Hospital, Grosse Pointe, will be held June 12 Papers will be presented by local staff members The occasion is in honor of Dr Elisha J Tamblyn, director of medical education, for his continuing service to the hospital Members of the medical profession are invited

Dr Conn Honored—Dr Jerome W Conn, professor of internal medicine, University of Michigan Medical School, Ann Arbor and chief of the endocrinology and metabolism unit at University Hospital, has been awarded the Claude Bernard medal from the University of Montreal's Institute of Experimental Medicine and Surgery He received the award while serving as the annual Claude Bernard visiting professor at the University of Montreal The honor is in recognition of work which led to the description two years ago of primary hyperaldosteronism

NEW YORK

Military Surgeons Meet—The New York Chapter of the Association of the Military Surgeons of the United States will hold its annual spring meeting at Governors Island June 6 at 6 00 p m The principal speaker will be General Dan C Ogle, Surgeon General of the United States Air Force, who will speak on 'Human Aspects of Flight into Space" The meeting will include a cocktail party and dinner to which guests may be invited For information write Capt Samuel Candel, MC, USNR, Secretary, New York Chapter Association of Military Surgeons of the United States, 189 Ocean Avenue, Brooklyn, N Y

Scholarships for Professional Study—Each year the State of New York awards 100 scholarships to preprofessional students for study in medicine and dentistry The examination for the next series of awards will be held on June 10 Students planning to enter medical or dental school in September, 1957, or in September, 1958, will have no other opportunity to take the examination The next examination will be held in October, 1958 The 100 scholarships are distributed on the basis of 36 medical and 14 dental scholarships to candidates residing in the counties of New York City, and an equal number to candidates residing in the other counties of the state Each scholarship is in effect for four years while the holder is attending an approved medical or dental school in New York State Information may be obtained from the Bureau of Examinations and Testing, State Education Department, Albany, N Y

NORTH CAROLINA

University News—The United States Public Health Service has made a two-year grant of $19,768 to Dr Walter R Benson of the University of North Carolina School of Medicine The funds will be used for research of the effects of disturbance of amino acid metabolism on protein formation growth and tumor formation in animals

Farm Fatalities Highest in State—Farming ranks as North Carolina's most hazardous occupation, it was revealed in figures released by the Accident Preventions Section of the North Carolina State Board of Health There were 104 residents of the State who died in farm mishaps during 1956 During the same period about 130 persons died in all other types of occupational accidents combined The accident report showed a total of 35 drownings on farms Accidents involving machinery took the lives of 28 residents, firearms, 11, and being struck by falling objects, 9 residents

OHIO

Personal—Dr Hans W Lawrence, medical director, Procter and Gamble Company, Cincinnati, was chosen president-elect of the Industrial Medical Association at its annual meeting in St Louis recently

Taylor Memorial Scholarship—The Cleveland Health Museum has awarded the 1956 Lester Taylor Memorial Scholarship ($500) to Mr George Hanosh, Detroit The scholarship is given each year by the women's committee of the museum to a graduate student interested in health education The winner spends three months at the museum, working with the staff on an original project Working with school officials and the museum staff, Mr Hanosh will plan the incorporation of small health museums within school buildings He will then design materials, such as charts, posters, and simple exhibits, for use in this type of museum These will serve as a preview to exhibits and lessons given at the museum and will bring health education to children who are not able to visit the museum itself

OREGON

Dr Saslow Goes to Portland—Dr George Saslow, clinical professor of phychiatry, Harvard Medical School, Boston, has been named to head the department of psychiatry, University of Oregon Medical School, Portland, effective June 1 He succeeds Dr Henry H Dixon, Portland, who will continue on the staff as clinical professor of psychiatry Dr Saslow presently is a consultant to the Surgeon General, U S Army and is on the steering committee, Office of Naval Research Study Section of the U S Public Health Service He was psychiatric consultant to the Los Alamos Medical Center from 1950 to 1955 and was director of the division of psychosomatic medicine, Washington University School of Medicine, St Louis

PENNSYLVANIA

Personal—Dr Richard Schatski, Brookline, Mass, gave the recent third annual Reilly Memorial Lecture at the annual meeting of the Pennsylvania Radiological Society held in Williamsport

Cardiovascular Grant—The John A Hartford Foundation, Inc, has awarded a grant of $343,800 to the Hospital of the University of Pennsylvania School of

Medicine for research in anesthesia methods, cardiac lesions, and lesions of the blood vessels The studies will be conducted under the direction of Dr Isidor S Ravdin, chairman of the surgery department, Dr Francis C Wood, chairman, department of internal medicine, and Robert D Dripps, chairman, department of anesthesiology

WISCONSIN

Theobald Smith Prize —Paul F Clark, Ph D , emeritus professor of medical microbiology, University of Wisconsin Medical School, Madison, has established the Theobald Smith prize of $100 to be awarded annually to the graduating medical student who submits the best experimental thesis Dr Clark has donated a total of $1,000 to make the prize possible for 10 years The winning student will be selected by a faculty committee Theobald Smith, who died in 1934, was a noted pathologist at Harvard and Princeton universities He discovered that Texas cattle fever, which was ruining the American cattle industry in the late 19th century, was caused by a parasite passed from one animal to another by ticks

Foreign Scholars Attend Education Conference —Fifty foreign scholars will attend a conference on medical education to be held at the University of Wisconsin Medical School, Milwaukee, June 24-26 University Medical School faculty and about 20 guest speakers from medical schools throughout the country will discuss the philosophy and practice of American medical education and lead sessions to answer questions Six national agencies are sponsoring the conference the China Medical Board, the Rockefeller Foundation, the Kellogg Foundation, the Fulbright Committee, the Association of American Medical Colleges, and the U S Department of Health, Education, and Welfare The two-day conference will be divided into lecture, discussion, and recreation periods Topics by out-of-state speakers include "The Philosophy of United States Higher Education," by Henning Larsen, Ph D , vice-president, University of Illinois, The Education of a Physician in the United States," by Dr Edward L Turner, secretary, Council on Medical Education and Hospitals, American Medical Association, "Evaluation of the Applicant for Medical Education," by Dr Robert J Glaser, dean, University of Colorado Medical School, and "Recent Trends in Medical Education,' by Dr T Hale Ham, coordinator of Western Reserve University Medical School, Cleveland

GENERAL

Tuberculosis Physicians Meeting in New York —The annual meeting of the American Academy of Tuberculosis Physicians will be held June 1 at the Henry Hudson Hotel, New York City Guest speaker at the luncheon will be Dr Ezra V Bridge, superintendent, Mineral Springs Sanatorium, Cannon Falls, Minn , whose topic will be 'Chemotherapy for Patients Following Hospitalization for Tuberculosis in the United States Results of a Survey of 424 Tuberculosis Hospitals" The presidential address will be given by Dr Rupert C L Markoe, Detroit A total of 14 papers will be presented and a business meeting will follow the program Information may be obtained from Dr Oscar S Levin, Secretary, American Academy of Tuberculosis Physicians, P O Box 7011, Denver 6, Colo

Meeting on Air Pollution in St Louis —The Air Pollution Control Association's golden jubilee meeting will be held in St Louis June 2-6 Benjamin Linsky, president of the association, will present the keynote address, 'Air Pollution Control—the Past 50 Years and the Future James H Carter, smoke commissioner of St Louis, is chairman of general arrangements Special sessions will be held in the mornings and afternoons, and a general session will be held the afternoon of June 3 A conference for control officials is scheduled for June 6 For information write Harry C Ballman, Executive Secretary, Air Pollutions Control Association, 4400 Fifth Ave , Pittsburgh 13

Examination of Orthoptic Technicians —The annual examination of orthoptic technicians by the American Orthoptic Council will be conducted in August and October The written examination will be nonassembled and will take place Aug 22 in certain assigned cities under the proctorship of designated ophthalmologists The oral and practical examinations will be held Oct 12 in Chicago, just preceding the meeting of the American Academy of Ophthalmology and Otolaryngology Application for examination will be received by the office of the chairman of examinations, Dr Frank D Costenbader, 1605 22nd St N W , Washington 8, D C , and must be accompanied by the examination fee of $30 Applications will not be accepted after July 1

Schizophrenia Research Grants —Grants totalling $99,400 for 25 research projects on schizophrenia were announced recently by F Barry Ryan Jr , president of the National Association for Mental Health An additional $1,000 has been earmarked as stipends for medical students to spend this summer in psychiatric research These grants were made from a special fund of $110,000 provided by the Supreme Council, 33rd Degree, Scottish Rite Freemasonry Of this amount, $100,000 has been contributed by the organization's Northern Masonic Jurisdiction and $10,000 by its Southern Masonic Jurisdiction The research program is being directed through the National Association for Mental Health A total of more than $1,210,000 has already been contributed by the Scottish Rite for research in the causes and treatment of schizophrenia

Announce Behavioral Research Grant —A pilot training and research program, stressing the interrelation of many branches of the biological and physical sciences as the key to a better understanding of the nervous system and human behavior, has been initiated at the Albert Einstein College of Medicine of Yeshiva University, New York City, as a result of a $1,700,000 grant made by the National Institute of Mental Health, U S Public Health Service Announcement of the grant, which covers a six-year period, was made by Samuel Belkin, Ph D , president of Yeshiva University Provision is made for awarding 36 fellowships on both predoctoral and postdoctoral levels The program will mark a new emphasis in both medical education and research by cutting across departmental lines and promoting an interwoven pattern of scientific research and thinking

Medical Cruise to Scandinavia—Duke University School of Medicine, Durham, N C, will conduct a postgraduate seminar cruise to Scandinavia, Aug 20-Sept 9, sailing aboard the Swedish luxury liner M S Stockholm, from New York The medical program will constitute 30 hours of acceptable category I postgraduate requirements of the American Academy of General Practice The faculty will include Drs William M Nicholson, associate professor of medicine, Deryl Hart, professor of surgery, W Banks Anderson, professor of surgery (ophthalmology), John E Dees, professor of urology, Susan Coons Dees, associate professor of pediatrics, and Julian M Ruffin, professor of medicine Stops will be made in Dublin, Edinburgh, Bergen, and Copenhagen Medical seminar meetings will be held aboard ship and in Edinburgh, Oslo, and Copenhagen For information write Dr William M Nicholson, Director, Postgraduate Education, Duke University School of Medicine, Durham, N C

Angiologists Meet in New York—The North American Chapter of the International Society of Angiology will hold its fifth scientific meeting June 1 at the Biltmore Hotel, New York City A symposium, 'Present Status of Surgical Management of Cardiac Valvular Insufficiencies,' is scheduled, with the following participants presenting various aspects Dr Jesse E Edwards, Rochester, Minn, the patho-physiologic aspects, Dr Samuel G Blount Jr, Denver, the medical aspects, Dr Dwight E Harken, Boston, the surgical management of mitral insufficiency, and Dr Charles A Hufnagel, Washington, D C, the surgical management of aortic insufficiency The presidential address, "Patent Ductus Arteriosus with Pulmonary Hypertension," will be presented by Dr Harris B Shumacker Jr, Indianapolis Invited speakers and their topics include Drs Milton F Bryant and John M Howard, Atlanta, 'Experimental Evaluation of Grafts Used to Replace Short Segments of Veins," and Drs Theodore I Jones and W Andrew Dale, Rochester, N Y, Study of Peripheral Autogenous Vein Grafts" For information write Dr Henry Haimovici, Secretary, International Society of Angiology, North American Chapter, 105 E 90th St, New York 28

Plastic Surgery Scholarships—The Foundation of the American Society of Plastic and Reconstructive Surgery, recently announced its 1957 scholarship contest Three groups of candidates are to be considered (1) Junior classification—restricted to residents in training, and plastic surgeons who have been in practice no longer than five years, two awards, a six-month and a three-month scholarship, are offered, character references by two leading plastic surgeons must accompany the manuscript (2) Senior classification—contestants must be in active practice of plastic and reconstructive surgery for more than five years (3) Original contributions in plastic surgery field submitted by non-plastic surgeons—a silver plaque or certificate of honorable mention is offered for a winning essay in classifications two and three Manuscripts should be sent by registered mail to the award committee before June 1 The subject matter of the essay must be the result of some original research in plastic and reconstructive surgery and about 5,000 words in length and unpublished All essays shall be submitted in quadruplicate An additional envelope shall include the contestant's name, address and affiliation, with details of professional training and percentage of practice in plastic surgery Send manuscripts to Dr Richard B Stark, 20 E 68th St, New York 21, N Y For information write the Foundation of the American Society of Plastic and Reconstructive Surgery, Inc, c/o Dr Clarence R Straatsma, President, 5 E 83rd St, New York 28, N Y

Establish Registry of Pediatric Pathology—The chairman of the committee on pediatric pathology of the American Academy of Pediatrics has announced that under the auspices of the American Academy of Pediatrics, a special registry, devoted to pediatric pathology, is to be established as a component of the American Registry of Pathology of the Armed Forces Institute of Pathology The advantages of a registry of pediatric pathology accrue from the special character of pathology as seen in children The registry of pediatric pathology will limit its material only with respect to the age group involved Adequate cataloguing, maintenance of records and availability of material are primary objectives in the procedure A consultation service will be provided for all pathologists, similar to that offered by the other component registries Leading authorities in pediatric pathology in this country and abroad will thus be on call for questions in their special fields of interest The material will also be made available for teaching purposes and it is hoped that in the future, the registry may provide a position for training in pediatric pathology The support of all pathologists and pediatricians, is said to be needed to insure the success of this new division Inquiries concerning it should be addressed to the Registry of Pathology at the Armed Forces Institute of Pathology, at Walter Reed Medical Center, 6825 16th St, N W, Washington 25, D C All interested physicians are invited to visit the registry The committee on pediatric pathology of the American Academy of Pediatrics consists of Drs Sidney Farber, professor of Pathology, Harvard Medical School, Boston, chairman, Edith L Potter, associate professor of obstetrics and gynecology, University of Chicago, the School of Medicine, Chicago, Irving J Wolman, associate professor of pediatrics, University of Pennsylvania School of Medicine, Philadelphia, William B Kiesewetter, associate professor of surgery, University of Pittsburgh School of Medicine, Pittsburgh, George H Fetterman, associate professor of pathology, University of Pittsburgh School of Medicine, Pittsburgh, Robert S Cleland, Los Angeles, Major Danield Stowens, MC, of the Armed Forces Institute of Pathology, is secretary of the committee

CORRECTION

Management of Intracranial Bleeding—Concerning his article in The Journal, March 30, 1957, Dr Maurice L Silver writes that the sentence beginning with the word "Emergency," nine lines from the end of the small print under "Case 3," page 1099, should read as follows "Emergency intubation and surgical exploration were without avail, and the patient died Emergency exploratory examination revealed the ruptured vascular malformation, with evidence of a large clotted hematoma and additional fresh bleeding extending through the brain to the brain stem"

EXAMINATIONS AND LICENSURE

BOARDS OF MEDICAL EXAMINERS

Alabama *Examination* Montgomery, June 18-20 Sec, Dr D G Gill, State Office Bldg, Montgomery 4

Arkansas * *Examination* Little Rock, June 13-14 Sec, Dr Joe Verser, Harrisburg

California *Written Examination* San Francisco, June 17-20, Los Angeles Aug 19-22, Sacramento, Oct 21-24 *Oral Examination* San Francisco, June 15, Los Angeles, August 17 San Francisco Nov 16 *Oral and Clinical for Foreign Graduates* San Francisco, June 16, Los Angeles, Aug 18, San Francisco, Nov 17 Sec, Dr Louis E Jones, 1020 N St Sacramento 14

Colorado * *Examination* Denver, June 11-12 Final date for filing application is May 13 Exec Sec Miss Beulah H Hudgens, 715 Republic Bldg, Denver 2

Connecticut * *Homeopathic Examination* Derby, June 11 Sec, Dr Donald A Davis, 38 Elizabeth St, Derby *Regular Examination* Hartford, July 9-11 Sec, Dr Creighton Barker 160 St Ronan St, New Haven

Delaware *Examination* Dover, July 9-11 *Endorsement* Dover, July 18 Sec, Dr Joseph S McDaniel, 225 S State St, Dover

Florida * *Examination* Miami June 23-25 Sec, Dr Homer L Pearson, 901 N W 17th St, Miami

Georgia *Examination and Reciprocity* August and Atlanta, June Sec, Mr Cecil L Clifton, 111 State Capitol, Atlanta 3

Idaho *Examination and Reciprocity* Boise, July 8-10 Exec Sec, Mr Armand L Bird, 364 Sonna Bldg, Boise

Illinois *Examination and Reciprocity* Chicago, June 17-21 Supt of Regis, Mr Fredric B Selcke Capitol Bldg, Springfield

Indiana *Examination* Indianapolis, June 19-21 Exec Sec, Miss Ruth V Kirk, 538 K of P Bldg Indianapolis

Kansas *Examination and Endorsement* Kansas City, June 5 6 Sec, Dr Lyle F Schmaus, 864 New Brotherhood Bldg, Kansas City

Kentucky *Examination* Louisville June 10-12 Sec, Dr Russell E Teague, 620 S 6th St Louisville

Louisiana *Examination and Reciprocity* New Orleans, June 6 8 Sec, Dr Edward H Lawson, 930 Hibernia Bank Bldg New Orleans 12

Maine *Examination and Reciprocity* August, July 9-11 Sec Dr Adam P Leighton, 192 State St Portland

Maryland *Examination* Baltimore, June 18-21 Sec, Dr Lewis P Gundry, 1215 Cathedral St, Baltimore 1

Massachusetts *Examination and Endorsement* Boston July 9-12 Sec Dr Robert C Cochrane, 37 State House, Boston 33

Michigan * *Examination* Ann Arbor and Detroit, June Sec, Dr E C Swanson, 118 Stevens T Mason Bldg, West Michigan Ave, Lansing 8

Mississippi *Examination* Jackson, June 24-25 *Reciprocity* Jackson, June 26 Asst Sec Dr R N Whitfield, Old Capitol, Jackson

Montana *Examination and Reciprocity* Helena, October 1 Sec Dr Thomas L Hawkins 7 West 6th Ave, Helena

Nebraska * *Examination* Omaha, June 17-19 Director, Mr Husted K Watson, Room 1009 State Capitol Bldg, Lincoln 9

Nevada * *Examination and Reciprocity* Reno, June 4 Sec, Dr George H Ross 112 North Curry St, Carson City

New Hampshire *Examination and Reciprocity* Concord, Sept 11-13 Sec Dr John S Wheeler, 107 State House, Concord

New Jersey *Examination* Trenton, June 18-21 Sec, Dr Patrick H Corrigan, 28 West State St, Trenton

New York *Examination* Albany, Buffalo, New York Rochester and Syracuse, July 9-12 Sec, Dr Stiles D Ezell, 23 South Pearl St, Albany 7

North Carolina *Endorsement* Raleigh, June 18 Bowling Green, July 26 *Written Examination* Raleigh, June 17-20 Sec, Dr Joseph J Combs, Professional Bldg Raleigh

North Dakota *Examination* Grand Forks, July 10 13 *Reciprocity* Grand Forks, July 13 Sec, Dr C J Glaspel, Grafton

Ohio *Examination and Reciprocity* Columbus, June 13-15 Sec, Dr H M Platter, 21 W Broad St Columbus

Oklahoma * *Examination* Oklahoma City, June 11 12 Sec, Dr E F Lester, 813 Braniff Building, Oklahoma City

Oregon * *Examination and Reciprocity* Portland, July 10 11 Exec Sec, Mr Howard I Bobbitt, 609 Failing Bldg, Portland

Pennsylvania *Examination* Philadelphia and Pittsburgh July 10-12 Acting Sec, Mrs Marguerite G Steiner, Box 911, Harrisburg

Rhode Island * *Examination* Providence, June 27-28 Admin of Professional Regulation, Mr Thomas B Casey, 366 State Office Bldg, Providence

South Carolina *Examination* Columbia June 25 26 Sec Mr N B Heyward 1329 Blanding St, Columbia

South Dakota * *Examination and Reciprocity* Place not yet determined July 16-17 Sec, Dr C B McVay, Yankton Clinic, Yankton

Tennessee * *Examination* Nashville, June 5 6 and Memphis June 12-13 Sec, Dr H W Qualls, 1635 Exchange Bldg, Memphis 3

Texas * *Examination and Reciprocity* Fort Worth June 24 26 Sec Dr M H Crabb, 1714 Medical Arts Bldg, Fort Worth 2

Utah *Examination* Salt Lake City, July 11-13 Director Mr Frank E Lees 324 State Capitol Bldg, Salt Lake City 1

Vermont *Examination and Reciprocity* Burlington June 20-22 Sec Dr F J Lawliss, Richford

Virginia *Reciprocity* Richmond, June 12 *Examination* Richmond, June 13-15 Office of the Board, 631 First St, S W, Roanoke

Washington * *Examination* Seattle, July 15-17 Sec, Department of Licenses, Mr Edward C Dohm, Olympia

Wisconsin * *Examination* Milwaukee, July 9 11 Sec, Dr Thomas W Tormay Jr, 1140 State Office Bldg, Madison 2

Wyoming *Examination and Reciprocity* Cheyenne, June 3 Sec Dr F D Yoder, State Office Bldg, Cheyenne

Alaska * On application in Anchorage and Juneau Sec, Dr W M Whitehead 172 South Franklin St Juneau

Guam *Subject to Call* Act Sec, Dr S F Provencher, Agana

Hawaii *Examination* Honolulu, July 8-9 Sec, Dr I L Tilden, 1020 Kapiolani St, Honolulu

Virgin Islands *Endorsement* St Thomas, June 12 Sec, Dr Earle M Rice, St Thomas

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Arizona *Examination and Reciprocity* Tucson, June 18 Sec, Mr Herbert D Rhodes, University of Arizona, Tucson

Colorado *Examination and Reciprocity* Denver, Sept 4 5 Sec, Dr Esther B Starks 1459 Ogden St, Denver 18

Connecticut *Examination* New Haven, June 8 Exec Asst, Mrs Regina G Brown, 258 Bradley St New Haven 10

Florida *Examination* Miami, June 8 Sec, Mr M W Emmel, Box 340, University of Florida, Gainesville

Minnesota *Examination* Minneapolis, June 4-5 Sec, Dr Raymond N Bieter, 105 Millard Hall, University of Minnesota, Minneapolis

Oklahoma *Examination* Oklahoma City, Sept 27-28 Sec, Dr E F Lester, 813 Braniff Bldg, Oklahoma City

Oregon *Examination* Portland, June 1 Sec Dr Earl M Pallett, University of Oregon Eugene

South Dakota *Examination* Vermillion, June 7 8 Sec., Dr Gregg M Evans, 310 E 15th St Yankton

Tennessee *Examination* Memphis July 2-3 Sec, Dr O W Hyman, 62 South Dunlap St Memphis 3

Wisconsin *Examination* Milwaukee, June 1, and Madison Sept 20 Sec, Mr W H Barber, 621 Ransom St Ripon

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*Basic Science Certificate required

GOVERNMENT SERVICES

AIR FORCE

New Air Force Hospital in Libya—The new air-conditioned 150-bed U S Air Force Hospital, recently dedicated at Wheelus Air Base near Tripoli, Libya, has five wards, an administrative wing, and outpatient, pharmacy, laboratory, x-ray, and physical therapy departments The hospital is capable of providing complete services to military personnel and dependents in the area, with the exception of orthopedic surgery, otolaryngology, and ophthalmology, however, these services are covered by consultants from the 7100th U S A F Hospital in Germany The new hospital is tied in with a widespread air evacuation system and will serve members of the armed services and their families from Morocco to the Burma border The hospital is authorized 52 officers, 128 airmen, 4 Air Force civilians, and 34 native positions Functioning as an area hospital in support of medical installations in Greece, Turkey, Crete, and Saudi Arabia, it will provide hospitalization or outpatient treatment for patients evacuated by air from these areas

It happened that a group of military and civilian doctors who were on a four-week nutrition study tour through 10 Middle Eastern and Near Eastern countries were in Tripoli last November and were able to attend the dedication ceremonies Among them were Dr Frank B Berry, Assistant Secretary of Defense, Rear Adm Bartholomew W Hogan, surgeon general of the U S Navy, Major Gen James O Gillespie, from the office of the Army Surgeon general, Dr Richard A Kern, professor of medicine, Temple University Medical School, Philadelphia, Dr Edward Churchill, professor of surgery, Harvard Medical School, Boston, Major Gen Harry Armstrong, surgeon, U S Air Forces in Europe, and prominent members of the Interdepartmental Committee on Nutrition for National Defense

Air Force Commissions—The surgeon general's office reports that scores of inquiries are being received from physicians who are noncitizens and/or graduates of foreign medical schools and who are interested in commissions in the Air Force Medical Service A wide range of nationalities is covered, and the persons are graduates of a number of foreign nonaccredited medical schools

To qualify for appointment in either the reserve or regular component of the Air Force, the applicant must be a graduate of a medical school accredited by the Council on Medical Education and Hospitals of the American Medical Association The applicant must be a citizen of the United States However physicians who are noncitizens and are special registrants under the Universal Military Training in Service Act, as amended, may be tendered temporary appointments if they are scheduled for induction and are allocated to the Air Force These physicians must have completed at least one year of approved internship or residency training and must be licensed to practice medicine in a state or territory of the United States or in the District of Columbia

New U S A F Hospital at Wheelus Air Base in Libya

ARMY

Suggestions for Medicare—Suggestions for a revision of the "Statement of Services Provided from Civilian Sources," DA Form 1863, have been called for by Major Gen Paul I Robinson, executive director of the Medicare program Considerable comment has been received by his office with respect to certain inadequacies and complexities of the existing form Recognition of the importance of a well-designed and adequate form for the payment of hospitals and physicians has prompted the Office for Dependents' Medical Care to take immediate action to improve the form's format

Any and all suggestions are welcome In order to redesign and make the form final without delay, General Robinson has asked that comments and layout designs be submitted to his office not later than May 15, 1957

Dr Hilleman Receives Award—In recognition of his contribution to medicine and to the Department of Defense, Dr Maurice A Hilleman of the Walter Reed Army Medical Center, Washington, D C, received from Secretary of Defense, Charles Wilson, on April 18, a citation and an award for his discovery of the RI-67 group of viruses, which have been found responsible for many cases of respiratory disease Five other distinguished civilian service awards were presented to scientists in other fields by the Secretary of Defense on April 18 Present at the ceremony were the several secretaries of military departments, key officials and officers of their staffs, and members of the families of the award recipients

In a symposium before the Section on Experimental Medicine and Therapeutics, June 4, during the Annual Meeting of the American Medical Association in New York, Dr Hilleman will present a paper on "Vaccination Against Adenovirus Infections" He also will have a scientific exhibit on this subject during the meeting

NAVY

New Reserve Consultants—Dr William L Rogers, San Francisco, and Dr Gordon M Bruce, New York City, have accepted invitations to serve on the Board of Reserve Consultants to the Bureau of Medicine and Surgery, representing, respectively, the specialties of surgery and ophthalmology Some 17 other consultants from various parts of the country serve on the board, which meets in Washington from time to time, to advise the surgeon general on the graduate training program of the Navy Medical Corps, and to assist in choosing consultant lecturers to the staffs of naval hospitals and similar advisory duties

VETERANS ADMINISTRATION

Home-Town Pharmacy Program—The VA's home-town pharmacy program supplements the VA pharmacy services in providing outpatient prescription service for veterans under treatment by private physicians for service-connected disabilities In 46 states and Hawaii, retail pharmacies participate in this program through state pharmaceutical associations In Rhode Island and Nevada, the retail pharmacies participate through direct arrangements with the VA The state pharmaceutical associations are paid a fee for administering the program, this is a percentage of the total value of prescriptions handled and is added to the basic prescription price charged by the pharmacist

The director of the pharmacy service at the VA central office, Washington, D C, Vernon O Trygstad, said that the annual volume of the prescriptions filled by retail pharmacies in the fiscal year 1956 was $2,687,693, and that if the current prescription volume continues throughout the remainder of the present fiscal year it will exceed that of the 1956 total He also said that, while the actual number of prescriptions fillled in 1956 by retail pharmacies decreased by 5%, the dollar volume remained about the same because the prescriptions, although fewer, often were for larger quantities of drugs

Personal—Dr Chalmer Davee, director, professional services, VA Center, Hot Springs, S D, has been appointed manager of the VA Hospital, Marion, Ill, succeeding Dr Edward A Welch, who retired April 30 The hospital is a 176-bed general medical and surgical facility

Dr F William Henderson has been reassigned as chief, medical service, at the VA Hospital in Lake City, Fla, succeeding Dr J A Baird, who retired

Staff Positions Available—The VA Hospital, Houston, Texas, will be opening 212 beds for psychiatric and tuberculosis-neuropsychiatric patients after July 1, 1957 Full-time staff positions, as well as regular and career residencies, are available The hospital's teaching program is a part of the Baylor University Affiliated Hospitals Residency Program

Hospital News—Dr Currier McEwen, associate professor of medicine, New York University–Bellevue Medical Center, New York City, addressed the staff of the VA Hospital at Northport, Long Island, N Y, April 29, on 'Experiences with the Long-term Use of Corticosteroids

PUBLIC HEALTH SERVICE

Sewage Treatment Grants to One Hundred Sixty five Municipalities—The Public Health Service announced on April 17 that in the last two months additional federal water pollution control grants totaling $15,212,939 have been made to 165 municipalities to help build sewage treatment works These cities and towns, ranging in population from 269 to 353,000, will add $49,928,035 of their own funds to the federal grants Since the beginning of the program last December, a total of $19,096,474 in federal grants has been made to 225 municipalities for sewage treatment construction, and the communities are adding $61,798,723 The average project will serve a population of about 18,000 and will cost about $310,000 The average federal grant has been about $74,000

Congress last year authorized annual grants of 50 million dollars, up to an aggregate of 500 million dollars, for the construction of municipal sewage treatment works It limited individual grants to $250,000 or 30% of the total project cost, whichever is less

Poliomyelitis Vaccine —Dr Leroy E Burney, the surgeon general said, on April 12, that releases of poliomyelitis vaccine and the reports from the states indicated that the vaccine shortage had eased somewhat in the last several days He reported that 5,200,000 cc of newly produced vaccine had been released so far in April and that larger amounts were expected during the latter half of the month

The surgeon general reported that over 59 million Americans had received one or more injections since the vaccine first became available on April 12, 1955 Many of these persons, however, need second or third injections to complete the recommended schedule of three doses Dr Burney also said that the incidence of poliomyelitis so far this year is remaining well below the 1956 incidence From Jan 1 to April 5, 1957, only 528 cases had been reported as compared to 1,067 for the same period last year To date, states and territories have received $46,300,000 of the $53,000,000 in federal grants available to them under the Poliomyelitis Vaccination Assistance Act of 1955, and they expect to spend the remainder before the act expires on June 30, 1957

Begin Survey of Nation's Health —On May 6 interviewers began visiting selected households throughout the nation to obtain information for the National Health Survey, the surgeon general has announced They ask questions about illness in the family, accidents and injuries, disability, hospitalization, and medical and dental care The surgeon general said, "This is the first time in 20 years that an effort has been made to collect these facts on a comprehensive basis

The household interviewing will be done by the Bureau of the Census and will be carried on continuously Each month a different group of households will be visited Since the size of the national sample is limited to 3,000 households per month, the number of households interviewed in any one area will be small The National Health Survey is being undertaken under legislation enacted by the last Congress The information collected in the household interviews will be kept confidential, and only statistical totals will be published

New Coast Guard Medical Chief —Dr Richard B Holt, a senior career medical officer of the Public Health Service, has been appointed chief medical officer of the U S Coast Guard, effective July 1, succeeding Dr Joseph F van Ackeren, who is retiring after 31 years of service As chief medical officer of the Coast Guard, Dr Holt will hold the rank of assistant surgeon general, comparable to that of rear admiral (upper half) He will be responsible for the supervision of all physicians, dentists, and nurses detailed to the Coast Guard, and will serve as liaison officer between the Coast Guard medical program and the Bureau of Medicine and Surgery of the U S Navy Dr Holt entered the Public Health Service in 1927

Inactive Reserves —The Public Health Service announced April 28 the appointment of 172 doctors, nurses, and other professional persons to the inactive reserve component of its commissioned officer corps The service is organizing and training health and medical personnel throughout the United States and its territories for emergency duty in times of national crisis Officers of the commissioned reserve are trained to serve in critical situations affecting the health and well-being of large numbers of people In emergencies, these officers would serve in posts for which their professional training and experience have best fitted them They would be called out principally to reinforce the staffs of official state and local health agencies and to augment the Public Health Service operating staff

Study of Nutritional Status of Indians —The Public Health Service has appointed seven research and nutrition authorities to serve as consultants on the nutritional status of American Indians This committee, which plans to meet twice a year, will consider priorities for the nutrition research needed It will review nutrition research projects involving Indians that are proposed to the Public Health Service by institutions and individuals

The members of the committee are Dr William J Darby, Nashville, Tenn , Dr Olaf Michelsen, Bethesda , Md , Dr John Adair, Sandoval, N Mex , Dr Robert E Shank, St Louis , Dr Charlotte Young, Ithaca, N Y , Dr Luther L Terry, Bethesda, Md , and Miss Marjorie Heseltine, Washington, D C

Dr James R Shaw, chief, and Dr J O Dean, assistant chief, Division of Indian Health, addressed the first meeting of this committee on April 29 Dr Bertlyn Bosley, chief, nutrition section, Indian health program, was chairman of the meeting

Personal —Dr Kenneth W Chapman has been appointed associate director of the Clinical Center of the National Institutes of Health, Bethesda, Md His previous assignment was with the National Institute of Mental Health, where he was consultant to state and community hospitals and health agencies on the medical problems of narcotic addiction Dr Chapman joined the Public Health Service in 1939

DEATHS

Sigerist, Henry Ernest, formerly director of the Institute of the History of Medicine at Johns Hopkins University School of Medicine, Baltimore, died at his home in Pura, Switzerland, March 17, aged 65 Dr Sigerist was born in Paris, France, April 7, 1891 He received his medical degree at the Universitat Zurich Medizinische Fakultat, Switzerland, in 1917 and during World War I was a medical officer in the Swiss Army From 1921 to 1923 he served on the faculty of the University of Zurich as a lecturer and professor of the history of medicine In 1925 he succeeded his teacher, the late Prof Karl Sudhoff, as director of the Institute of the History of Medicine at the University of Leipzig, serving until 1932 when he came to the Johns Hopkins University School of Medicine in Baltimore succeeding Dr William H Welch as director of the Institute of the History of Medicine, serving until 1946 when he retired and became research associate in the history of medicine at Yale in New Haven, Conn Dr Sigerist had been named to Yale faculty under an unusual arrangement whereby he could live in Switzerland and engage in preparing a monumental eight-volume history of medicine He traveled widely He delivered the South African Universities lectures, the Messenger lectures at Cornell, and came to Yale in 1940 to deliver the annual Dwight Terry lectures In 1944 he served as chairman of the Saskatchewan Health Services Survey Commission and advisor to the Health Survey and Development Commission of India In 1943 he was a vice-president of the American Association for the Advancement of Science, and since 1938 was vice-president of the International Society for the History of Medicine He was an honorary fellow of the Academy of Medicine of Mexico and the New York Academy of Medicine, member of the American Academy of Arts and Sciences, American Philosophy Society, Alpha Kappa Kappa, Delta Omega, and Alpha Omega Alpha He was past-president and secretary of the American Association of the History of Medicine and of the Society of the History of Science In 1933 he was awarded the Karl Sudhoff Medal and in 1950 the William H Welch Medal of the American Association of the History of Medicine He was the author of several books, and the editor of many volumes, reports, and bulletins of foreign universities, the founder and editor for 15 years of the *Bulletin of the History of Medicine,* and from 1943 to 1948 he was editor of the *American Review of Soviet Medicine* He had been awarded the degrees of doctor, honoris causa, University of Madrid, doctor of literature from the University of the Witwatersrand, doctor of laws from Queens University, Kingston, Ont, and doctor of science from the University of London, England

Hamilton, Charles Marshall ⊕ Nashville, Tenn, born in Russellville, Ala, March 25, 1890, Vanderbilt University School of Medicine, Nashville, 1918, professor emeritus of clinical dermatology at his alma mater, formerly on the faculty of Meharry Medical College, specialist certified by the American Board of Radiology, past-president and treasurer of the Tennessee State Medical Association, serving as chairman of its board of trustees, past president of the Nashville Academy of Medicine and the Davidson County Medical Society, since 1949 member of the House of Delegates of the American Medical Association, member of the American Academy of Dermatology and Syphilology and the Radiological Society of North America, since 1953 a member of the board of hospital commissioners of Nashville, served on the staffs of the Nashville General Hospital and St Thomas Hospital, where he was president of the medical staff since 1942, died April 25, aged 67, of a heart attack on Kentucky Lake, near Camden, while fishing with friends

Durlacher, Stanley Henry, Miami, Fla, born in New York City June 5, 1911, *Yale University School of* Medicine, New Haven, 1938, served on the faculty of his alma mater, Louisiana State University School of Medicine in New Orleans, and at Johns Hopkins in Baltimore, since 1956 Dade County medical examiner, at one time chief of the pathological section, Medical Division, Army Chemical Center, Md, assistant medical examiner for Maryland from 1950 to 1952, when he became pathologist, coroner's office, Orleans Parish, La, serving until 1956, visiting pathologist at the Charity Hospital, New Orleans, from 1953 to 1956, certified by the National Board of Medical Examiners, fellow of the American Association of Pathologists and Bacteriologists and the College of American Pathologists, specializing in pathological anatomy, medical examiner's office, Jackson Memorial Hospital, died in St Luke's Hospital, Chicago, March 19, aged 45, of subarachnoid hemorrhage, and essential hypertension

Engler, Clarence William ⊕ Cleveland, born in Fremont, Ohio Aug 1, 1895, Western Reserve University School of Medicine, Cleveland, 1919, specialist certified by the American Board of Otolaryngology, assistant clinical professor of otolaryngology at his alma mater, veteran of World War I, member of the American Academy of Ophthalmology and Otolaryngology, Cleveland Library Association, Academy of Medicine of Cleveland, American Laryngological Association, and the American Laryngological, Rhinological and Otological Society, president of the American Broncho-Esophagological Association, fellow of the American College of Surgeons, on the staffs of the Huron Road Hospital, East Cleveland, City Hospital, St Luke's and Lutheran hospitals, until recently president of the staff of St Vincent Charity Hospital, where he died Feb 23, aged 61, of congestive cardiac disease

Cohen, Ira ⊕ New York City, born in Long Branch, N J, in 1887, Columbia University College of Physicians and Surgeons, New York City, 1911, member of

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⊕ *Indicates Member of the American Medical Association* the founders group of the American Board of Surgery, specialist certified by the American Board of Neurological Surgery, member of the American Neurological Association of which he was at one time vice-president, fellow of the American College of Surgeons, served as member of the New York Academy of Medicine, served in the medical corps of the U S Army on the Mexican Border in 1915, a captain in the medical corps of the U S Army in France during World War I, served on the staffs of the Mount Sinai Hospital, where he was president of the medical board, from 1942 to 1945, Hospital for Joint Diseases, and the Montefiore Hospital, died in Stratford, Conn , March 8, aged 69, of leukemia and cancer

Bonthius, Andrew ⊕ Pasadena, Calif , born in Chicago Nov 27, 1880, Northwestern University Medical School, Chicago, 1909, emeritus professor of medicine at College of Medical Evangelists Loma Linda and Los Angeles, specialist certified by the American Board of Internal Medicine, fellow of the American College of Physicians, at one time a medical missionary in China, and consular surgeon for the U S Public Health Service in Amoy, China, on the staff of the Los Angeles County Hospital, consultant, Collis P and Howard Huntington Memorial Hospital, for three years medical examiner for the Selective Service during World War II, a director of the Chamber of Commerce, died Feb 24, aged 76, of coronary occlusion

Fritzell, Kenneth Edward ⊕ Grand Forks, N D , born in Minneapolis Feb 17, 1908, University of Minnesota Medical School, Minneapolis, 1931, certified by the National Board of Medical Examiners, specialist certified by the American Board of Surgery fellow of the American College of Surgeons, past-president of the Grand Forks District Medical Association, associate professor of surgery, University of North Dakota School of Medicine, veteran of World War II, member of the staffs of St Michael s Hospital and the Deaconess Hospital, where he was chief of staff from 1951 to 1954, surgeon for the Great Northern Railway, died in the Peter Bent Brigham Hospital, Boston, Feb 19, aged 49, following an operation on the heart

Wilson, Joseph G , Senior Surgeon, U S Public Health Service, retired, Beloit, Wis , born June 23, 1874, University of Pennsylvania Department of Medicine, Philadelphia, 1898, service member of the American Medical Association, member of the American Psychiatric Association, associated with the U S Public Health Service from 1906 to July 1, 1938, when he retired, served as director of the division of hospitals and mental hygiene, state department of welfare in Kentucky, formerly connected with the National Committee for Mental Hygiene in making surveys of mental institutions in various parts of the United States, died in the Beloit Hospital Feb 5, aged 82, of bronchopneumonia and coronary sclerosis

Sturgeon, John Dawson Sr , Uniontown, Pa , born in Uniontown, July 12, 1854, College of Physicians and Surgeons, Baltimore, 1880, an associate member of the American Medical Association, the Fayette County Medical Society, of which he was for one term president and for 20 years assistant secretary, dedicated the June, 1954, issue of its publication the *Fayette County Mirror,* in honor of his 100th birthday anniversary, at one time county coroner, a member of the city s first board of health, for some time U S pension examiner, one of the founders and charter member of the staff of the Uniontown Hospital, died Feb 15, aged 102, of pneumonia

Collins, William James ⊕ Northampton, Mass , Harvard Medical School, Boston, 1898, decorated by Gen John J Pershing during World War I for exceptionally meritorious and conspicuous service" in France where he served as division surgeon and chief medical officer for the 76th Division of the American Expeditionary Forces, awarded the Purple Heart, during World War II did recruiting work for the Army Navy, and Marines, on the staff of the Cooley Dickinson Hospital where he died March 1, aged 80, of cerebral hemorrhage and arteriosclerotic heart disease

Crosby, Leonard Green ⊕ Denver, born in New Auburn, Minn Jan 26, 1873, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899, specialist certified by the American Board of Radiology, member of the Radiological Society of North America and the American College of Radiology, past-president of the Rocky Mountain Radiological Society, veteran of World War I, on the staffs of Colorado General, Denver General, Mercy and St Luke s hospitals, and St Joseph's Hospital where he died Feb 17, aged 84, of cerebral hemorrhage

Dodd, Verne Adams ⊕ Lantana, Fla , born in Waterville, Ohio, Feb 21, 1881, Ohio Medical University, Columbus, 1903, member of the Ohio State Medical Association, fellow of the American College of Surgeons, past-president of the Columbus Academy of Medicine, veteran of World War I, emeritus professor of surgery at the Ohio State University College of Medicine in Columbus, the Ohio State University presented him with the honorary degree of LL D , formerly chief of staff of the Ohio State University Hospital in Columbus, where he died Feb 22, aged 76, of cancer

Duval, Douglas Forrest, Colonel, U S Army, retired, Annapolis, Md , born June 4, 1870, University of Virginia Department of Medicine, Charlottesville, 1894, commissioned a captain in the medical corps, regular Army, in 1903, among other places, served at the U S Military Academy West Point, Philippine Islands, Hawaii, Cuba and the Mexican border, during World War I, was commanding officer of Evacuation Hospital, number 11 France, member of the American Medical Association and fellow of the American College of Surgeons, died in the Anne Arundel General Hospital Jan 16, aged 86, of peritonitis

Gerstley, Jesse Robert ⊕ Chicago, Rush Medical College, Chicago, 1909, specialist certified by the American Board of Pediatrics, member of the American Academy of Pediatrics, past-president of the Chicago Pediatric Society, at one time member of the board of governors of the Institute of Medicine of Chicago, member of the Alpha Omega Alpha honor fraternity, veteran of World War I, served as associate in pediatrics at Northwestern University Medical School, past-president of the medical staff at the Michael Reese Hospital, where he was chairman of the pediatric department, died March 16, aged 70

Schmitt, Lionel Samuel, San Francisco, University of California School of Medicine, San Francisco, 1901, an associate member of the American Medical Association, associate professor of preventive medicine emeritus at the University of California School of Medicine, where he served as acting dean, formerly director of hospitals, University of California Hospital, a member of the California Academy of Sciences and the California Academy of Medicine, veteran of World War I, died in St Francis Memorial Hospital Feb 5, aged 79, of carcinoma of the colon and coronary arterial insufficiency

Smythe, Frank Ward ⊕ Memphis, Tenn , born in Kosciusko, Miss , Nov 18, 1891, University of Tennessee College of Medicine, Memphis, 1917, associate professor of surgery at the University of Tennessee College of Medicine, member of the founders group of the American Board of Surgery, member of the Southern Surgical Association, Central Association of Obstetricians and Gynecologists, and Southeastern Surgical Congress, fellow of the American College of Surgeons, veteran of World War I, on the staffs of the John Gaston Hospital and Baptist Memorial Hospital, died Jan 26, aged 65

Pinkley, Virgil Milo, San Bernardino, Calif , born in Geneva Nebr in 1884, Vanderbilt University School of Medicine Nashville, Tenn 1908, served as deputy health officer and later as superintendent of the San Bernardino County Hospital, retiring in 1951, at one time associated with the Indian Service, for four years president of the board of trustees of the city school, San Bernardino Valley College gave him its first annual award for meritorious service in the cause of education and civic progress, died Feb 12, aged 72, of acute myocardial infarction

Randall, Samuel Bunker ⊕ Santa Cruz, Calif , University of California School of Medicine, San Francisco, 1925, certified by the National Board of Medical Examiners, fellow of the American College of Surgeons, secretary of the Santa Cruz County Medical Society, veteran of World War I, a member of the city board of education from 1937 to 1955 and president of the school trustees from 1951 to 1955, on the staffs of Santa Cruz and Sisters hospitals, died Feb 1, aged 58, of carcinoma of the stomach with metastasis

Dinnen, James Frank, St Petersburg, Fla , Indiana University School of Medicine, Indianapolis, 1908, served as vice-president of the American Association of Railway Surgeons, from 1927 to 1943 chief surgeon for the Erie Railroad, formerly assistant chief surgeon for the Nickel Plate Road and supervising surgeon for the Chesapeake and Ohio Railroad, for many years consulting surgeon at St John's Hospital and on the staffs of St. Luke's and Lutheran hospitals, died Feb 18, aged 72

Alliaume, Charles Edward, Utica, N Y , Hering Medical College, Chicago, 1895, an associate member of the American Medical Association, member of the American Radium Society, served on the staff of St Luke's–Memorial Hospital Center, died Feb 16, aged 83

Allphin, Winfield Scott, Georgetown, Ky , Hospital College of Medicine, Louisville, 1904, member of the Kentucky State Medical Association, president of the Scott County Medical Society, member and past-president of the Rotary Club, president of the First National Bank of Georgetown, on the staff of the John Graves Ford Memorial Hospital, died in St Joseph's Hospital, Lexington, Feb 17, aged 76, of a heart attack

Anderton, Herbert Seth, San Diego, Calif , University of Maryland School of Medicine, Baltimore, 1910, an associate member of the American Medical Association, veteran of World War I, on the staff of the Mercy Hospital, on the board of the San Diego Gas and Electric Company, died Feb 15, aged 68, of coronary disease

Atchley, Barney D , Everett, Wash , Drake University College of Medicine, Des Moines, 1911, died Dec 2, aged 77

Atkinson, Curtis ⊕ Wichita Falls, Texas, Jefferson Medical College of Philadelphia, 1900, veteran of World War I, past-president of the Wichita County Medical Society, died Feb 16, aged 82

Axelrad, John ⊕ Farmingdale, N Y , Medizinische Fakultat der Universitat, Vienna, Austria, 1924, formerly owner of the Lakeside Hospital in Copiague, where he died Feb 21, aged 57, of coronary thrombosis

Bailey, Donald Middlesex ⊕ Gillett, Wis , Hahnemann Medical College and Hospital of Philadelphia, 1941, interned at Morristown (N J) Memorial Hospital, veteran of World War II, on the staff of the Community Memorial Hospital in Oconto Falls, died in Montego Bay, Jamaica, British West Indies March 9, aged 42, of coronary thrombosis

Baker, Benjamin Philo, Orlando, Fla , Medical College of Virginia, Richmond, 1948, service member of the American Medical Association, interned at Lewis Gale Hospital in Roanoke, Va , where he served a residency, captain and flight surgeon in the 321st Bomber Wing of the Strategic Air Command, died at the Pine Castle Air Base Feb 11, aged 34

Bell, Lewis Barclay ⊕ Chicago, Northwestern University Medical School, Chicago, 1911, member of the American Academy of General Practice, formerly on the faculty of his alma mater, Rush Medical College, and the Chicago Medical School, on the staff of the Jackson Park Hospital, local surgeon for the Illinois Central Railroad, died March 24, aged 72, of myocardial infarction

Bell, Walter Houston, Dozier, Ala , University of Nashville (Tenn) Medical Department, 1906, died in the Mizell Memorial Hospital, Opp, Feb 19, aged 82, of myocarditis with decompensation

Bernstein, Perry ⊕ Providence, R I, Tufts College Medical School, Boston, 1924, on the staffs of the Roger Williams General Hospital and the Miriam Hospital, where he died Feb 23, aged 58, of cerebral hemorrhage

Blackley, Carl Alvan, Lockport, N Y, Hahnemann Medical College and Hospital of Philadelphia, 1896, served as city physician, health officer, and Lockport School District physician, died Feb 19, aged 87

Blais, Robert Ernest ⊕ Amesbury, Mass, Boston University School of Medicine, 1924, interned at the Lowell (Mass) General Hospital, past-president of the North Essex Medical Society, veteran of World War II, for many years school physician, president of the medical staff of the Amesbury Hospital, where he died Feb 21, aged 59, of carcinoma of the lung

Blakeslee, Malcolm Rae ⊕ Portland, Conn, Syracuse University College of Medicine, 1925, member of the American Psychiatric Association, died in the Ellis Hospital, Schenectady, N Y, Dec 1, aged 56, of myocardial failure

Boggs, David Alexander ⊕ Wilkinsburg, Pa, University of Pittsburgh School of Medicine, 1914, veteran of World War I, on the staff of Columbia Hospital, died in the Allegheny General Hospital, Pittsburgh, Feb 28, aged 65, of postoperative anuria following replacement graft surgery for aortic aneurysm

Boone, Cassius A ⊕ Louisville, Ky, University of Louisville (Ky) Medical Department, 1913 member of the American Society of Anesthesiologists, on the staffs of the Kentucky Baptist Hospital, St Anthony Hospital, and Norton Memorial Infirmary, died in the Orange Memorial Hospital, Orlando, Fla, Feb 27, aged 69, of myocardial infarction and coronary sclerosis

Bradley, George Richard ⊕ Jacksonville, Ill, Barnes Medical College, St Louis, 1897, member of the staff of Passavant Memorial Hospital, where he died Feb 21, aged 87, of strangulated inguinal hernia and arteriosclerosis

Bronsten, Irvin Cecil, Yonkers, N Y, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1926, an associate member of the American Medical Association, served on the staff of the Lying-In Hospital and the Montefiore Hospital, New York City, where he died March 4, aged 54, of coronary disease

Burchfield, George Winston ⊕ Maryville, Tenn, Vanderbilt University School of Medicine, Nashville, 1917, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, city commissioner, died in the Blount Memorial Hospital Feb 26, aged 62, of cerebral hemorrhage

Burket, Firm C, St Petersburg, Fla, Eclectic Medical College, Cincinnati, 1922, died Feb 13, aged 65, of myocardial infarction

Butts, Arthur Clarkson Jr, New York City, Columbia University College of Physicians and Surgeons, New York City, 1902, specialist certified by the American Board of Obstetrics and Gynecology, fellow of the American College of Surgeons, on the staff of the Fordham Hospital, died Feb 22, aged 76

Byers, Joy Cleveland, Glendale, Ariz, Northwestern University Medical School, Chicago, 1920, died Feb 18, aged 64, of a heart attack

Carhart, Earl Clyde, Los Angeles, Jefferson Medical College of Philadelphia, 1905, served on the staffs of the Angelus, Los Angeles County, and the Presbyterian Hospital-Olmsted Memorial hospitals, died in Santa Monica (Calif) Hospital March 3, aged 77, of arteriosclerosis, heart disease, and nephritis

Carpenter, Burwell S ⊕ Fairfield Ala, Medical College of Alabama, Mobile, 1905 served as a member and president of the board of education, on the staff of the Lloyd Noland Hospital, died Feb 17, aged 74, of mediastinal lymphoma

Chesne, Irving Leonard ⊕ Chicago, Loyola University School of Medicine Chicago 1919, member of the American Academy of General Practice, on the staffs of Belmont, Frank Cuneo, and Columbus hospitals, on the board of the Loyola University Alumni Association, died April 1, aged 68, of acute coronary occlusion

Clancy, Arthur William ⊕ Newburyport, Mass, Georgetown University School of Medicine, Washington, D C, 1929, veteran of World War II, on the staff of the Anna Jaques Hospital, died Feb 24, aged 54, of a heart attack

Clement, Mortimer Taliaferro, Lieut Commander, U S Navy, retired, Charleston, S C, Medical College of South Carolina Charleston, 1916, service member of the American Medical Association, joined the Navy in 1916 and retired in 1938, on the staff of the Roper Hospital, died Feb 28, aged 66, of heart disease

Cole, George Maynard ⊕ Brawley, Calif, College of Medical Evangelists, Loma Linda and Los Angeles, 1943, past-president and secretary of the Imperial County Medical Society, served as chief of staff, Pioneers Memorial Hospital, died Feb 22, aged 54

Collier, Thomas Read, Whitesburg, Ky, University of Louisville (Ky) Medical Department, 1917, member of the Kentucky State Medical Association, died Feb 21, aged 66, of coronary occlusion

Conneen, Lawrence Whelen ⊕ Portland, Maine, Georgetown University School of Medicine, Washington, D C, 1937, specialist certified by the American Board of Radiology member of the American College of Radiology, on the staff of the Bath (Maine) Memorial Hospital, Brunswick (Maine) Hospital, and Mercy Hospital, died Feb 7, aged 45

Culver, Cyrus Whitney ⊕ Washington, D C, McGill University Faculty of Medicine, Montreal, Quebec, Canada, 1910, veteran of World War I, on the staffs of Garfield Memorial and Doctors hospitals, died March 17, aged 71, of heart disease

Darling, William Adelbert, Wilson, Okla, College of Physicians and Surgeons, Dallas, Texas, 1905, died Feb 13, aged 86, of arteriosclerosis

Drury, Ray C, Chicago, Northwestern University Medical School, Chicago, 1923, fellow of the American College of Surgeons, on the staff of St Anthony de Padua Hospital, died in the Augustana Hospital March 25, aged 60, of cancer of the colon

Ebeling, Walter Wilford ⊕ Mount Vernon, Wash, University of Pennsylvania School of Medicine, Philadelphia, 1928, fellow of the American College of Surgeons, member of the American Academy of General Practice, veteran of World War II, died in the Swedish Hospital, Seattle, Feb 17, aged 55

Eckman, W Guy, Covington, Ky, Medical College of Ohio, Cincinnati, 1895, served as health officer of Covington, died in the William Booth Memorial Hospital Feb 12, aged 82

Falconer, Richard Craig, Berkeley, Calif, Medical College of Ohio, Cincinnati, 1890, for many years practiced in Lexington, Ky, where he was on the staffs of St Joseph and Good Samaritan hospitals, died Feb 27, aged 89, of heart disease

Fauley, Gordon Brown ⊕ Chicago, Northwestern University Medical School, Chicago, 1930, veteran of World Wars I and II, on the staff of the Norwegian American Hospital, where he died March 29, aged 57

Findley, William McCrea, Wilkinsburg, Pa, Western Pennsylvania Medical College, Pittsburgh, 1904, an associate member of the American Medical Association, member of the American Academy of General Practice, died in the Columbia Hospital March 6, aged 76, of cancer

Freece, Margaret A, Salina, Utah, Northwestern University Woman's Medical School, Chicago, 1897, for many years member of the school board, died in the Salina Hospital Feb 19, aged 85, of cardiac decompensation

Friedman, Peter Henry, New York City, Long Island College Hospital, Brooklyn, 1911, on the staff of the Lincoln Hospital, died in the Lenox Hill Hospital Feb 26, aged 74

Friedman, Townsend Baer ⊕ Chicago, University of Chicago, The School of Medicine, 1933, instructor in medicine, Northwestern University Medical School, specialist certified by the American Board of Internal Medicine, member of the American Academy of Allergy and the American Psychosomatic Society, veteran of World War II, chairman of the department of Allergy, Children's Memorial Hospital and Michael Reese Hospital, where he died March 6, aged 51

Fryer, Julius William, Hathorne, Mass, Medizinische Fakultat der Universitat, Vienna, Austria, 1928, member of the Massachusetts Medical Society, fellow of the American Psychiatric Association, specialist certified by the American Board of Psychiatry and Neurology, on the staff of the Danvers State Hospital, died Feb 13, aged 58

Gardiner, Waldron Raymon Jr, San Francisco, University of California School of Medicine, San Francisco, 1948, on the staff of the Stanford University Hospital, died March 6, aged 35

Goodman, James Dudley ⊕ Elyria, Ohio, Ohio State University College of Medicine, Columbus, 1939, specialist certified by the American Board of Ophthalmology, member of the American Academy of Ophthalmology and Otolaryngology, on the staff of the Elyria Memorial Hospital where he died Feb 14, aged 44, of polycystic kidney

Hagan, John Ausman, Los Angeles, Starling Medical College, Columbus, 1901, died Feb 20, aged 79, of hemiplegia and arteriosclerosis

Park, James Howard Jr ⊕ Houston, Texas, Tulane University School of Medicine, New Orleans, 1916, clinical professor of pediatrics at the Baylor University College of Medicine, specialist certified by the American Board of Pediatrics, member of the American Academy of Pediatrics, fellow of the American College of Physicians, on the courtesy staff of the Methodist Hospital, where he died Feb 6, aged 65

Parker, John Livingston, Downey, Calif, Jefferson Medical College of Philadelphia, 1906, past-president of the Imperial County Medical Society, for many years practiced in Brawley, where he was an honorary member of the Rotary Club, of which he was at one time a president, died Feb 2, aged 80

Peebles, Martha Jane, East Stroudsburg, Pa, Woman's Medical College of the New York Infirmary for Women and Children, New York City, 1897, for many years practiced in Brooklyn, where she was on the staff of the Brooklyn Hospital, served in France during World War I, formerly director of the board of health of New York City, died in Allentown (Pa) Hospital Jan 23, aged 86, of arteriosclerosis

Pitzman, Marsh ⊕ St Louis, Washington University School of Medicine, St Louis, 1906, died in the Jewish Hospital Feb 7, aged 74, of bronchiectasis and cor pulmonale

Poling, James Bishop ⊕ Lima, Ohio, Miami Medical College, Cincinnati, 1904, veteran of World War I, for many years city health commissioner, on the staffs of the Lima Memorial Hospital and St Rita's Hospital, where he died Jan 17, aged 79

Pope, Jenkins M, Edisto Island, S C, Medical College of the State of South Carolina, Charleston, 1895, died in the New Roper Hospital, Charleston, Jan 29, aged 84

Powell, Elmer Alvin, North Baltimore, Ohio, Illinois Medical College, Chicago, 1902, veteran of World War I, for many years member and president of the city and county board of education, vice-president from 1917 to 1932 when he became president of the Hardy Banking Company in North Baltimore, serving until January 1956, when he became chairman of the board, died in the Community Hospital, Bowling Green, Feb 12, aged 84

Pressly, Edward Brewster, Sparta, Ill, Medical College of Georgia, Augusta, 1950, served in the medical corps of the U S Army, formerly resident on the staff of St Joseph's Hospital, Alton, died in St Lukes Hospital, St Louis, Dec 12, aged 42

FOREIGN LETTERS

ARGENTINA

Plethora of Medical Students —The dictatorship suffered by Argentina for 12 years tended to increase the number of university students by political reasons, with an absolute disregard for the qualities or intellectual standards of the students entering the university Three factors were decisive for this increase (1) the entrance examination was abolished, (2) tuition was free, and (3) a high school diploma was not necessary for acceptance In spite of this bad situation, immediately after the fall of the dictatorship, it was not possible in Buenos Aires in 1956 to have measures for the selection of medical students adopted, although this was done at the University of Cuyo, Mendoza The total number of students in the seven medical schools of the country is 30,881, of whom 7,618 are first-year students However, the medical school in Mendoza has only 106 freshmen, and these were selected by an entrance examination Teaching was greatly improved in 1956, but because of the excessive number of students it is still difficult and unsatisfactory This is why all the professors of the medical school in Buenos Aires have requested the immediate establishment of an entrance examination for the 1957 academic year As a result, some demagogues have tried to provoke student resistance by means of strikes and public disorders The total number of physicians in the country is over 25,500, or one for each 700 inhabitants It has been calculated that by 1960 there will be 30,000, or one for each 650 inhabitants

Poliomyelitis —In 1956 there was a severe epidemic of poliomyelitis, with about 5,000 cases and a high mortality, especially in children under 2 years of age Medical groups from the United States, France, Norway, Spain, and Germany came to Argentina and promoted modern methods of treatment of the disease The Salk vaccine was given to more than 3 million children In 1956, 1,608 cases were reported in January and February, but in the same period in 1957 only 203 cases were reported

FRANCE

Pleuropulmonary Perforation —At the meeting of the Medical Society of the Hospitals in Paris on Nov 30, H Brocard and co-workers reported that pleuropulmonary perforation occurred in 3 of 40 patients with severe tuberculosis treated by deltacortisone and antibiotics They were 20, 34, and 38 years of age respectively In two, the pleural exudate did not contain any bacilli, as the perforation did not start in a caseous tubercle The speakers suggest giving hormonal treatment only to patients with recent exudative noncavitary lesions They believe that the use of hormones prevents the pulmonary parenchyma from taking the place of the substances carried away through the liquefied caseous cavity

Treatment of Intractable Pain —In *Semaine des Hôpitaux* (Jan 30, 1957), J Sigwald and co-workers present the results of their treatment of intractable pain They infiltrate the frontal lobe with procaine through a suborbital opening according to a technique of their own The operation takes about 10 minutes for each side It may be practiced in the ward Of 20 such infiltrations the results have been excellent in 7, fair in 10 and poor in 3 Although minor complications may occur, no psychic disturbance nor any alteration of personality has been observed after these infiltrations

Coenzyme A in Chronic Arteritis —At the meeting of the Medical Society of the Hospitals in Paris on Dec 7, M Perrault and F Kirsch reported their results with coenzyme A in 20 patients with chronic arteritis refractory to any of the usual treatments The new treatment failed in only two cases They gave each patient two intramuscular or intravenous injections a week of 300 mcg of coenzyme A and reduced the injected dose to 150 mcg a week as soon as improvement was noted The speakers believe that the excess of lactic acid, a toxic metabolite in the blood of patients with arteritis, is transformed by coenzyme A turned into glycogen in the muscles and the liver On the other hand, this coenzyme favors the synthesis of acetylcholine, a vasodilator

Benzopyrine in Cigarettes —The *Bulletin de l'Association française pour l'etude du cancer* (no 2, 1956) presents evidence that 3-4 benzopyrine is present in an extract of cigarette smoke The authors set up an artificial smoker, allowing it to burn cigarettes while regulating the speed of combustion They noticed that the substance extracted from the tars of the cigarette papers presents a spectrum identical to that of 3-4 benzopyrine The burning of 100 cigarette papers yielded 3 mcg of this product, but the burning of 100 cigarettes yielded only 1 2 mcg This suggests that tobacco contains some substance having an inhibitory action on the formation of 3-4 benzopyrine The authors have not yet been able to prove whether this compound is a carcinogen or only a very closely related derivative of a carcinogen

INDIA

Constituents of Urine in Health and Disease —Pain and Banerjee (*Indian Journal of Medical Research,* January, 1957) studied the total and nonprotein nitrogen, urea nitrogen, ammonia nitrogen, amino acid nitrogen, creatinine, creatine, and uric acid in 50 normal subjects, 25 patients with cirrhosis of liver, 25 with subacute nephritis, and 20 with hypertension The normal subjects consumed 80 to 110 Gm of pro-

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The items in these letters are contributed by regular correspondents in the various foreign countries

tein, with an average intake of 2,100 calories per day, patients with cirrhosis and subacute nephritis took 100 to 120 Gm. of protein with a 2,200-calorie diet, and hypertensive patients took 75 to 85 Gm. of protein with a 2,400-calorie diet. Twenty four-hour urine samples were collected from each patient for three consecutive days. Cirrhotic patients excreted more amino acid nitrogen and ammonia nitrogen and less of the other constituents than normal subjects. They also excreted creatine, which was absent in the urine of normal persons and other patients studied. Patients with subacute nephritis had albuminuria. They excreted more amino acid nitrogen, but the excretion of other constituents was greatly diminished. Hypertensive patients also had albuminuria. In their specimens all the nitrogenous constituents were low, possibly because of renal failure.

Nature of Union Between Chloramphenicol and Antibodies.—C. M. Rangam and co-workers (*Indian J. M. Sc.* 11:1, 1957) reported that chloramphenicol has been found by some workers to lower the agglutinating titers of serums of patients with typhoid while others have observed contradictory results. It has been suggested that the lowering of the titers is due to a physical union between chloramphenicol and antibodies against Salmonella typhi. The authors, therefore, studied the nature of this union. They found that incubation of rabbit immune serum with chloramphenicol caused a decline in its antibody titer, which was restored to its former level by refrigeration. Alternate incubation and refrigeration with charcoal or a mixture of charcoal and chloramphenicol gave identical results. Progressively increasing quantities of chloramphenicol were demonstrable in the globulin fraction of the serums during the incubation phase and progressively diminishing quantities during the refrigeration phase. The authors' results pointed to a physical union between chloramphenicol and antibodies through adsorption.

Sarcoma of the Breast.—S. Kuruvilla (*Journal of Postgraduate Medicine,* January, 1957) reported a series of 30 patients with sarcoma of the breast. With adequate treatment, sarcoma has a better prognosis than carcinoma of the breast. The 30 patients were seen at the Tata Memorial Hospital, Bombay, during the years 1941 to 1955. In the same period there were 1,596 cases of carcinoma of the breast. The age of the patients with sarcoma ranged from 18 to 77 years, 18 being between 21 and 40 years. In all patients the presenting symptom was a lump in the breast. In six, there was a history of a previous operation for the disease. In one, there were six recurrences. Retraction of the nipple was present in one patient. Enlarged axillary lymph nodes were palpated in six patients. The duration of the symptoms varied from 1 month to 15 years. Histologically, fibrosarcoma was the commonest form of sarcoma, the other forms were cystosarcoma phylloides, lymphosarcoma, carcinosarcoma, and myosarcoma. In both fibrosarcoma and cystosarcoma phylloides there is often a history of a long-standing tumor that has suddenly started growing rapidly. Such a history was present in all the three cases of malignant cystosarcoma. Three of the four lymphosarcomas were seen in young patients. In one patient there were lumps in both breasts and a mass in the hypogastrium. Later she developed a generalized involvement of lymph nodes and subcutaneous nodules. All three cases of carcinosarcomas were of less than four months' duration when first seen. The carcinomatous and sarcomatous elements in the primary tumor were mixed, but metastases in lymph nodes showed only the carcinomatous element. One patient had bilateral lumps, one being a carcinosarcoma and the other a fibroadenoma. Metastasis to regional lymph nodes is rare in sarcomas of the breast, with the exception of carcinosarcoma and lymphosarcoma. Lymph node involvement in fibrosarcoma indicates a grave prognosis. Metastasis to bones was seen in three patients with fibrosarcoma and to the lungs in one with fibrosarcoma and in one with carcinosarcoma.

Central Council of Health.—At the meeting of the Central Council of Health held at Ranchi in December the Union Minister of Health said that good progress had been made in many fields and some notable developments had taken place. The targets laid down for nursing and ancillary personnel can be reached by intensifying the training program to overcome the shortage. The centrally aided training schemes for the training of health visitors and auxiliary nurse-midwives, which started in the first Five Year Plan, are to be continued in the second Five Year Plan. Special attention is necessary for the orientation of the workers on the village level in the fundamentals of public health and environmental sanitation. The village-level worker is in day-to-day touch with the people and has been especially trained in the proper approach to the people in order to seek their acceptance of new ideas and skills for the improvement of health and prevention of disease. Malaria control has progressed satisfactorily. Fortunately no resistance to insecticides has so far been reported in vectors, and as it usually takes a few years for such resistance to develop, an all-out effort will be made to completely eradicate malaria within the next few years. The mass BCG campaign made excellent progress until April, 1955, but it has bogged down since then because of the unsatisfactory conditions of service for the BCG staff and inadequate publicity. Other tuberculosis control measures included in the second Five-Year Plan are, however, being developed. The main features of this program, in addition to a BCG campaign, include (1) establishment of 300 fully equipped tuberculosis clinics, (2) establishment of 12 tuberculosis demonstration and training centers in association with medical colleges, (3) provision of 4,000 beds in different parts of the country, (4) establishment of a rehabilitation and aftercare center in association with large clinics, and (5) research work in collaboration with the Indian Council of Medical Research.

Although leprosy control has been slow, mainly because of the scarcity of suitably trained personnel, both medical and paramedical, of the 40 pilot project centers envisioned under the scheme, treatment and study centers and 30 subsidiary centers have been established A central leprosy teaching and research nstitute has been established in Tirumani, Madras Health education is assuming increasing importance A short training course for health educators has been nstituted at the All-India Institute of Hygiene and Public Health, Calcutta Arrangements are now almost complete for introducing an advanced course or health education specialists A family planning research and program committee has been set up to make recommendations to the government Two thousand family-planning clinics are to be opened in rural areas during the second Five-Year Plan period n association with primary health units At each urban and rural clinic contraceptives will be distributed free of charge

NORWAY

Prof Carl Muller—On the occasion of Prof Carl Muller's 70th birthday last November his former and present collaborators joined in publishing a commemorative volume composed of original articles chiefly concerned with cardiovascular diseases This volume is published as a supplement to *Acta medica scandinavica* All the 17 articles are in English The volume opens with a brief appreciation of Muller as teacher, research worker, and physician As a teacher he has been a constant source of inspiration to his pupils and assistants, and as a research worker he has a well-earned international reputation based, among other things, on his study of hereditary xanthomatosis (Harbitz-Muller's disease) and its relation to coronary disease

Penicillin Risks—Dr O K Harlem (*Tidsskrift for den norske Lægeforening*, Feb 15, 1957) sent an elaborate questionnaire to 1,215 persons who had been patients in the hospital or in a private medical practice or were employees in one of two industrial concerns They were asked if they had been given penicillin and, if so, in what way, if the penicillin treatment had been adequate, and how frequent and how intense certain complications had been Of these persons, 621 had been given penicillin This represented 67% of the 194 hospital patients but only 46% of the 325 employees in industrial concerns Only 16 persons, or 1 3%, had had complications after penicillin treatment, and among them there were only 7 whose complications (urticarial reactions) could be regarded as definitely allergic reactions due to penicillin This brings the penicillin risk down to 0 6% Only in two patients had the reaction necessitated discontinuance of the treatment In 86% the penicillin had been given by injection, in 10% by mouth, and in only 4% in the form of local applications (ointments, drops, inhalations) The comparative immunity enjoyed by the 621 persons given penicillin may partly be traced to the rarity with which penicillin was given as a local application, a procedure of which the author disapproves A classification of the persons according to age suggests that when penicillin treatment has been in use longer nearly all of the community will have become "penicillinized" Only about half the persons given penicillin had received it for four days or longer, and those who had been treated for a shorter time could hardly have been given adequate treatment Several of the recipients of penicillin had been given it on inadequate indications Harlem compares his penicillin allergy rate of 0 6% with those of several American observers whose estimates of the penicillin complication rate have ranged from 5% to 15%

Norwegian Aid for Underdeveloped Countries—Between 1950 and 1955, Norway put 75 experts in various sciences at the disposal of the United Nations A brochure issued by the Norwegian United Nations' Union gives an account of the work of seven of these experts in six countries One of them, Dr J Kvittingen, became a consultant for the combined international-national health project in Addis Ababa, Ethiopia Working at the venereal disease polyclinic and laboratory in Addis Ababa, he had to get along without fully qualified assistants most of the time He came to the conclusion that the widespread dissemination of syphilis constituted the greatest health problem in Ethiopia After the spring of 1955, excellent assistance was obtained from American-trained Ethiopian health educators, and many of the patients learned how important it is to bring the person from whom they had got their infection to the polyclinic In 1954, there were no fully qualified Ethiopian physicians in the country, and the few foreign physicians were a very mixed lot Without exception, the physicians attached to the various missions did excellent work While the Norwegian mission was stationed south of Addis Ababa, the Swedish mission was stationed to the west of the capital The medical officers of these two missions were most active, and the work they got through was impressive Among the private practitioners were many Italians who had remained in the country after the occupation

SWEDEN

Hypophysectomy for Malignant Disease—At the Serafimer Hospital in Stockholm, Professor Olivecrona and co-workers continue to operate on the pituitary body with a view to the cure, or at least the arrest, of malignant disease, particularly cancer of the breast Their latest observations (*Nordisk medicin*, Jan 24, 1957) concern a series of 75 patients In addition to 55 women and 2 men with cancer of the breast, there were 10 men with cancer of the prostate The remaining patients had a variety of malignant tumors In 5 of the 10 men with prostatic tumors, arrest or remission of the disease was noted Two of those with remission had previously undergone other endocrine treatment without benefit A remission could be claimed in 54% of the patients with cancers of the breast Almost the same percentage (56%) has been claimed by other surgeons operating on the pituitary body for malignant disease This remission rate of at least 50% may be higher than that of any other endocrine method of treatment, but Olivecrona does not therefore jump to the conclusion that hypophysectomy is necessarily superior to other methods In six patients with remission, the hypophysectomy was certainly incomplete Metastasis to the brain and extensive metastasis to the liver may possibly be contraindications to this operation as well as ages over 60 years. The mean duration of the remissions effected in the women with metastatic breast cancer was about 17 months. Remissions could be claimed for both the men suffering from metastatic breast cancer.

Chancroid.—Chancroid continues to be essentially a seaman's venereal disease imported from abroad. Its frequency has fallen to such an extent that it is now rare. In the 10-year period 1946 to 1955, only 491 such cases were reported in the whole of Sweden. A series of 260 patients, 14 of whom were women, was studied by Bjornberg and Krook (*Svenska lakartidningen*, Feb. 1, 1957). Most of the 246 male patients were seamen, and while most of them had been infected in foreign ports, all the women had been infected in Sweden. Several of the patients had had, or still suffered from, some other venereal disease, and as many as 36 also suffered from recent syphilis. Gonorrhea was also a common complication, as were scabies and pediculosis pubis. None of the 36 patients suffering also from recent syphilis had been treated with penicillin before coming to the hospital. On the other hand, there was not one case of recent syphilis among the 37 patients who had been treated with penicillin before hospital admission. In all the 37 patients, the chancroid had shown no sign of improvement with the penicillin treatment given on board ship without the benefits of an accurate medical diagnosis. Although the broad-spectrum antibiotics are undoubtedly effective against chancroid, it may be well to avoid them as they may mask a simultaneous syphilitic infection. The authors are well pleased with the sulfonamide treatment of chancroid, and they combine oral therapy with sulfonamides with local sulfonamide applications. Such treatment, persisted in for three to seven days, may be relied on to cure practically every case. The concomitant bubos yield to injections of penicillin, which does not, however, seem to have a definitely therapeutic effect on the soft chancre itself.

New Mode of Intoxication.—In September, 1955, the admission to the hospital of an emergency case of what was thought to be acute alcoholism in a 13-year-old boy led to the discovery of a rather widespread vice in boys of school age. Altogether 32 schoolboys were examined. Of these, 27 underwent sternal puncture and others underwent electroencephalography while under the influence of inhalations of "thinner," a solution much in use in the painting industry as a cleaning and solvent agent. An analysis of this solution showed that it contains ethyl and butyl acetate, ethyl and butyl alcohol, toluene, and probably some benzine. Reporting on these cases in *Svenska lakartidningen* for Jan. 4, Christiansson and Karlsson express grave concern over the psychiatric, sociological, and toxicological problems raised. Among the 32 boys, 18 had been addicted to this vice for at least six months, and there were some who had indulged in it for about five years. "Thinner" is dripped on a pad of absorbent cotton or a pocket handkerchief which is pressed against nose and mouth and then inhaled. The "thinner" is also inhaled as a spray directed against the lining of the nose and mouth. A sense of intoxication soon follows, and complete unconsciousness may occur. In 10 of the cases examined by sternal puncture, reactive changes were found in both the protoplasm and the nuclei of the blood cells, the former showing increased granulation and the latter alterations in the arrangement of chromatin. The electroencephalographic changes indicated cerebral stimulation, and it is doubtful if all the changes effected by prolonged indulgence in this vice are reversible. There is also the risk of addiction to it. This vice, known by the boys as "sniffing," is a serious matter requiring prophylactic measures, but, considering how useful "thinner" is in the painting world, it may be difficult to have restrictions imposed on its sale.

UNITED KINGDOM

Mass Radiography.—During the winter of 1955-1956, the mass radiography service of the Liverpool Regional Hospital Board carried out an intensive survey in the district of Bootle. Wide publicity was given to the scheme through the local newspapers, cinemas, leaflets, talks, loudspeakers, and door-to-door canvassing. The attendance of nearly all of the eligible school children was the most encouraging feature. The results (*Lancet*, Jan. 19, 1957) revealed that of 22,340 persons examined, 52 needed immediate treatment for tuberculosis and 580 had lesions that needed further study. Twelve cases of carcinoma, 98 of bronchiectasis, and 332 of cardiac abnormalities were also discovered. These results indicate the value of this method of case finding.

Nursing Homes.—The 1955 report of the health officer for London shows that there has been a steady decrease in the number of nursing homes from 170 in 1937 to 48 in 1955. Rising costs have been the main factor. Accommodation charges, which, before World War II, ranged from $14 to $24 a week, in 1955 ranged from $30 to $70 a week. The number of inmates in nursing homes dropped from 3,167 in 1947 to 1,091 in 1952. Fewer operations are performed in these homes and more of the beds have been used for medical cases, the chronically sick, and senile patients. Establishments where the aged are cared for fill a real need. Since in many staff positions a practical rather than a trained nurse will suffice, the smaller nursing homes might well turn their attention to the care of nonsurgical elderly patients.

Vagal Resection for Duodenal Ulcer.—Although vagal resection for the treatment of duodenal ulcer has not been generally accepted in this country, A. A. MacKelvie in the *British Medical Journal* of Feb. 9 presented an analysis of 473 consecutive cases so treated. 76% of the patients had received medical treatment for the condition as outpatients and 19% while in the hospital. Symptoms had been present for more than five years in at least half of the patients, and 33% had had either a perforation or noteworthy hemorrhage. The operation was performed through the abdominal wall after the left lobe of the liver had been mobilized. The esophagus was mobilized, at least 5 cm. of each vagus nerve was resected, and any residual twigs of the nerves carefully sought Of 118 patients on whom this operation was performed, in 28% the results were poor due to the need for later performing a gastroenterostomy to relieve gastric retention and such other symptoms as flatulence and diarrhea In view of this fact, in 332 patients the vagal resection was combined with gastroenterostomy, and an excellent result, with a mortality of only 2%, was obtained in over 90% of these patients A similar excellent result was obtained in 19 patients in whom vagal resection was combined with pyloroplasty, but vagal crush as a sole procedure in four patients produced no benefit The author believes that vagal resection with a combined gastroenterostomy or pyloroplasty is the method of choice in the treatment of duodenal ulcers

Traumatic Rupture of Extrahepatic Bile Ducts—John A McCredie *(British Medical Journal,* Feb 2, 1957) reported two cases of damage to the extrahepatic bile ducts in young children In each case the damage was the result of a traffic accident The lesion was not recognized at laparotomy In one patient a biliary fistula was present for three weeks, and in the other biliary ascites required frequent aspiration In both patients spontaneous healing took place Roentgenographic investigations, with the use of iodipamide sodium as the contrast medium revealed a normal biliary tree, and as a result of this experience the author suggests that attempts to repair recently traumatized extrahepatic ducts may increase the likelihood of stenosis In such cases, simple abdominal drainage and possibly cholecystostomy is all that is required

Car Design—In 1954 traffic accidents accounted for 5,010 deaths in Great Britain William Gissane, *(British Medical Journal,* Feb 16 1957) states that this compares favorably with figures from Germany, France, and Italy, whose populations are less than that of Great Britain The figures for these countries were 11,565, 7,539, and 5 281 respectively Although many factors may account for this difference, Gissane postulates that the popularity of small low, lightweight cars in these countries may be a factor With the return of gasoline rationing in Great Britain, these small cars are becoming increasingly popular This is to be deplored from the safety angle The author advocates the solid construction of body work with good design, incorporation of a good length of steel between the driver and anything he might hit, safe design of steering wheel, shatterproof glass, and a car high enough to give the driver a good view of the road He bases his views on many years of hospital experience and believes that the saving on gasoline may have been bought at too high a price

Treatment of Periarteritis Nodosa with Cortisone—A committee appointed by the Medical Research Council to investigate the effect of cortisone on the course of periarteritis nodosa reported *(Brit M J* 1 608, 1957) that as the prognosis of the disease is so grave, it is considered unethical and impracticable to have a treated and a control series A retrospective series of control patients treated before the introduction of cortisone was used for comparison The diagnosis in all patients admitted to the trial was proved by means of biopsy specimens Treatment with a dosage of 200 mg daily by mouth for a week, was started as soon as a positive diagnosis was made, or before, in the case of seriously ill patients This daily dosage was raised 100 mg each week until full suppression of the disease was obtained, or until the side-effects became intolerable Once suppression occurred an attempt was made to reduce the dosage to a maintenance level In patients with hypertension, which materially affects the prognosis, special care was taken if the blood urea level was over 60 mg per 100 ml or the diastolic blood pressure was over 110 mm Hg Strict comparison between the treated patients and the controls was not possible because of the much higher incidence of hypertension in the control group When the patients with hypertension were included in the comparison the results indicated that cortisone produced quicker relief of symptoms and suppression of signs in the treated group When the hypertensive patients were not included, the difference in the treated and untreated patients was small, but statistically in favor of the cortisone-treated patients The securing of a sustained suppression of outward manifestations of periarteritis nodosa required such large dosage of cortisone in some patients that troublesome side effects were produced

Penicillin in the Treatment of Breast Abscess—De Jode *(Lancet* 1 560, 1957) reports that the advent of antibiotics has not diminished the number of cases of breast abscess treated in hospital Of 68 consecutive cases seen at the London Hospital Micrococcus pyogenes was grown in cultures from 64 When childbirth had taken place in the hospital, 90% of the cultured micrococci were penicillin-resistant, whereas the figure dropped to 71% in those cases where birth had occurred at home Of 100 consecutive cases of breast abscess, 68 were lactational and 32 non-lactational Penicillin alone or with other antibiotics was used in 44 of the laboratory cases, other antibiotics alone in 4, and in the remainder of the cases no antibiotic was used When the organism in the abscess was penicillin-resistant, both the number of surgical incisions required and the healing time were increased in comparison with that in the cases in which no penicillin was given The masking of signs of inflammation may lead to serious delay in instituting drainage, with the result that an excessive amount of breast tissue is destroyed, amounting in some cases to a functional mastectomy

A further consequence of this destruction of breast tissue is the increased liability to further breast abscesses, particularly after later pregnancies Use of penicillin should be restricted to early cases of acute mastitis, and then only when the mother has not been delivered in hospital and there is therefore a reasonable chance of dealing with an organism sensitive to penicillin If there is no response in 48 hours, the use of penicillin should be discontinued Care should be taken to see that the patient is kept under supervision to ensure that the condition is cured and not merely masked When an abscess has formed, early and effective drainage is the surest way of obtaining early healing

CORRESPONDENCE

METHYLATED STEROIDS AND JAUNDICE

To the Editor —Orally given methyltestosterone has been used in clinical practice since its introduction by Foss in 1939 (*Brit M J* 2 11, 1939) both for its anabolic and for its androgen effects It was not until 1947 that Werner (*Am J Med* 3 52, 1947) suggested that its use might rarely be associated with jaundice Other reports followed (Kinsell, L W *Gastroenterology* 11 672, 1948, Werner, S C, Hanger, F M, and Kritzler, R A *Am J Med* 8 325, 1950, Wood, J C *J A M A* 150 1484-1486 [Dec 13] 1952 Van Dommelen, C K V, and Van der Steur, J C *Nederl tijdschr geneesk* 99 2732, 1955, Brick, I B, and Kyle, L H *New England J Med* 246 176, 1952) According to Werner and co-workers (ibid) the whole picture of jaundice associated with methyltestosterone seems to be due to bile stasis Biopsy showed dilated bile canaliculi in the central zones plugged with masses of bile pigment, and there was very mild hepatic cell damage in these central areas The cephalin-flocculation reaction was negative, the serum alkaline phosphatase level only moderately elevated, and the serum bilirubin value increased Although jaundice may be protracted, recovery is complete, in three patients who had recovered, renewed administration of this methylated compound only reproduced jaundice in one and, furthermore, as Gordon (Yearbook of Endocrinology, 1955-1956 Series, Chicago, Yearbook Publishers, Inc, 1956) states, "One reason for doubting the causative role of methyltestosterone is that the icterus is reported to disappear spontaneously, even when administration of the compound is continued' He had not seen a case after considerable experience with this substance

Since testosterone has not been so implicated, some pharmaceutical literature has given this as a reason for discontinuing use of methyltestosterone in favor of tablets of testosterone for sublingual or sublabial use Though testosterone when given orally is ineffective owing to deactivation by the liver, the makers and others claim that, given by the sublabial route, it is as effective as parenterally administered esters Methyltestosterone, on the other hand, is effective when swallowed and when absorbed sublabially, although it is slightly more efficient by the latter route (Foss, G L *J Endocrinol* 13 269, 1956) The metabolism of these two substances is apparently different in that methyltestosterone increases creatinuria and does not increase the 17-ketosteroid value

In a fairly extensive use of methyltestosterone with doses ranging from 5 to 150 mg daily over prolonged periods up to 10 years, it so happens that we have only encountered one possible case of jaundice which might have been attributed to methyltestosterone therapy Since for practice purposes it would be a pity to omit the use of methyltestosterone, unless its association with jaundice were shown to be a direct sequence and not merely coincidental, we felt we should try to ascertain whether any other physicians have noted jaundice associated with this therapy After letters to *Lancet* (1 1020, 1956) and the *British Medical Journal* (2 1426, 1956) on similar lines, we have received information about a further 10 cases in Britain and the Commonwealth in which there appeared to the observer to be an association between the taking of methyltestosterone and the appearance of jaundice, although in many of these cases there seemed to be good evidence that hepatic disease in some form was present before methyltestosterone was taken

We are venturing to submit this letter to THE JOURNAL to give us the opportunity of learning from its readers either in a published letter or private communication of any cases they may have encountered in their practice, whether the jaundice had any special characteristics, and whether this was direct proof or probability of cause and effect Since commencing this investigation it seems to us that the enquiry should be extended to other methylated steroids such as methylandrostenediol, methylandrostanolone, methyl 9 α-fluorohydrocortisone and 9 α-fluoro-11 β-hydroxy 17 α-methyltestosterone

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BREAST CARCINOMA AND TRIETHYLENE THIOPHOSPHORAMIDE

To the Editor —An article by Bateman and Carlton (THE JOURNAL Oct 20, 1956 page 701) on the use of triethylenethiophosphoramide (thio-TEPA) presents data suggesting that this drug has unusual properties in controlling primary and disseminated carcinoma of the breast These authors maintain it is of special value when injected directly into the tumor site, although claims are also made of good effects on cerebral, osseous, and pulmonary metastases after systemic administration

Conclusions as to the value of any therapeutic procedure in patients with disseminated cancer of the breast are usually fraught with error because of the variability of the natural course of the disease, variations in the selection and size of clinical samples, and the difficulty in measuring objective regression of the disease Even when undisputed tumor regression does occur, it is necessary to determine if regression is due to the agent under investigation or to ancillary therapy, or even to late effects of previous treatment It seems apparent in the article cited that other modalities, notably irradiation, were employed concurrently with triethylenethiophosphoramide The definition of 'improvement' is not clear in this article, but one obtains the impression that, if any lesion regressed during therapy, that constituted improvement by their criteria, irrespective of the course of other tumor metastases A safer definition of tumor regression is that selected by the Subcommittee on Breast and Genital Cancer of the Committee on Research of the American Medical Association regression of major lesions without progression of any lesion or development of new lesions "

It is logical to expect local tumor regression at the site of injection of any caustic, cytotoxic or sclerosing agent, but the value of such treatment in carcinoma of the breast is very limited Isolated troublesome lesions usually can best be treated by irradiation or surgery Although triethylenethiophosphoramide is useful when injected into the pleural space for the control of neoplastic disease effusions, it does not appear to be superior to nitrogen mustard or radioactive gold Others who have used this drug do not agree that it is 'notable' for its lack of side-effects and serious bone marrow depression has been repeatedly reported

At the present time it is the consensus of those working in the field of cancer chemotherapy that triethylenethiophosphoramide is of no more value than other alkylating agents All these agents have been disappointing from the point of view of generalized tumor suppression in cancer of the breast, and their usefulness in this disease is probably limited to the control of effusions complicating metastatic disease

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PROTECTIVE COATING FOR PLASTER CASTS

To the Editor —During the course of routine fracture care in a large clinic one is impressed with the high rate of destruction of plaster casts, especially by children A good number of the casts disintegrate under the strain of the writings, carvings and washings to which they are subject The frequent wettings of casts during the routine of living reduce many to the point where they resemble a soft rubber bandage Not infrequently, reapplication of casts is required More rarely, position of fractures is lost by failure of weakened plaster to maintain immobilization

It has been found that the external spraying of casts with Krylon plastic reduces these problems This Dupont plastic spray is dispensed in pressure cans and may be purchased at most paint or hardware stores for about $1 50 The spray may be applied immediately without waiting for the cast to dry One or two light applications have usually been sufficient No irritation of skin has been noticed

Approximately 75 casts have been treated by external spraying with Krylon plastic The life span of the cast was definitely increased, in fact it was found that the cast could frequently be made lighter due to the added hardness of the finish Dirt and grime may be removed by wiping with a damp cloth The glass-like surface resisted all but the most determined autograph artists An ordinary dousing with water in no way weakened the plaster

If the operator be in the mood for frivolity, casts may be coated in pink, blue, or any other color that might delight the patient's fancy Indeed, there have been several occasions when the use of this modality has helped in gaining rapport with a difficult child

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SUBSCRIPTIONS FOR ABROAD

To the Editor —I have recently received the various publications of the A M A through arrangement with the Christian Medical Society, and I wish to express my deep appreciation of this wonderful help Patients come from many miles to be treated by "the American doctor " In a way we are representing the whole medical profession in America to these people For we are all that they see of American medicine at work If we fail, American medicine has failed in their eyes

I am in charge of a small mission hospital in village India Villagers look to us for the final help when all other help has failed They will not go a long way to another hospital for consultation If we can not help them, they usually go back to their village to die, hence versatility and a broad knowledge of medicine and surgery are of vital importance The publications you are sending are an immense help

Our financial resources are very limited, and our Indian doctor's is even more limited May I say that the literature vacuum is one of the biggest problems to the progress of medicine in backward areas It is comforting to know that you at home are interested in doing all you can to help in this and many other ways as we serve God and our fellow men in this remote and backward area

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MISCELLANY

AMERICAN COLLEGE OF PHYSICIANS MEETING

The keynote of the annual meeting of the American College of Physicians in Boston in April was sounded by Dr Walter L Palmer, its president, who said that he did not believe that medicine was moving too fast but that many patients are expecting too much of it Modern drugs have made a valuable contribution to the practice of medicine, but to call them miracle drugs is to create a false concept in the minds of the public The most important things in medicine are still to discover the pathogenesis of the many diseases for which this is unknown or imperfectly known and to increase the accuracy of diagnosing the patient's condition Greater attention should be paid to the information obtainable through the physical examination G E Schreiner deplored the fact that many a physician today either does not have a microscope in his office or does not use it to examine the patient's blood and urine Many diagnoses would be made months or years earlier to the great benefit of the patient if such examinations were made routinely in office practice Henry I Russek warned that in the physician's zeal to use new and powerful drugs he must be sure that the cure is not worse than the disease For example, a fine balance must be struck between the amount of an anticoagulant drug necessary to prevent thrombosis and the amount that will produce bleeding The risk involved is justified when treating the more serious cases, but these powerful drugs are all too often given to patients with mild attacks and in whom the prognosis for recovery is excellent The giving of the drug only subjects such patients to a needless risk Robert P McCombs pursued this theme from another angle Persons who rush to take every new drug that is announced lay themselves open to serious drug reactions It is estimated that such reactions are 10 times as common as they were just after World War II No new drug should be taken without medical supervision, and the physician who prescribes it should be alert to detect untoward signs that may be the result of treatment

Immunity—At a panel on factors influencing resistance to infection, it was agreed that the wonder is not that people get sick but that in an environment teeming with many kinds of infectious agents so many stay well In some cases heredity is a factor in resistance to disease Resistance to infection may be weakened by a variety of causes Infection with one organism may open the door to a host of secondary invaders Pregnancy, industrial poisons, ionizing radiations, splenectomy, and diabetes mellitus are some of the other factors reducing resistance Charles A Janeway said that chicken pox, usually one of the most harmless of the childhood infections, may end fatally in a child who has been taking large doses of cortisone or related preparations

Coronary Heart Disease—David P Barr said that coronary heart disease depends on three factors heredity, sex hormones, and the amount of fat in the diet These factors control the distribution and concentration of the blood lipids that lead to coronary thrombosis The first cannot be controlled, but an understanding of the changes induced in the serum lipid spectrum by gonadal steroid administration may be useful in evaluating the greater vulnerability of men than women to coronary atherosclerosis, according to R H Furman and R P Howard Ancel Keys stated that the theory that the diet, and especially its fat content, is important in the genesis of coronary heart disease is supported by recent experimental and epidemiologic studies Fatty meals accelerate blood coagulation and inhibit fibrinolysis Extensive experiments on men on controlled diets show effects on serum cholesterol concentration that prove to be predictable from knowledge of the amounts and kinds of fats fed Attempts to show participation of dietary protein in the effects of dietary fats on cholesterol are negative The serum cholesterol differences between populations do not depend on differences in obesity or physical activity between those populations Studies on Japanese men in Japan, Hawaii, and California reveal, as predicted, a striking parallelism between the proportion of fat in the diet, concentration of cholesterol in the blood, and the frequency of severe atherosclerosis and coronary heart disease The serum cholesterol differences produced in dietary experiments on man and observed in population comparisons are usually, if not always, due to beta-lipoprotein cholesterol

New Antidiabetic Drug—R P Bradley and L P Krall reported on the oral use of a nonsulfonamide preparation that they called DBI that has the advantages over carbutamide that it is nontoxic and is of some benefit to young as well as old diabetics It lowers the blood sugar level, and its only untoward side effect appears to be nausea The daily dose is only 250 mg Among the advantages of oral treatment for diabetes is the fact that some people who need treatment do not have the intelligence necessary to give themselves sterile injections of insulin

Tuberculosis—Irving Kass stated that, since the advent of effective antimicrobial therapy, the internist is more frequently faced with the responsibility of initiating or continuing the therapy in patients ill with tuberculosis Unless the physician uses the antimicrobials properly, he can precipitate the emergence of resistance to the medicaments used Once resistance has been established, no matter how intense the subsequent therapy, sputum conversion to negativity is rarely achieved The following technique constitutes effective therapy Since isoniazid (INH) is most effective on multiplying organisms, bed rest, unless the patient's condition is toxic, is not required Similarly, collapse therapy is not used in patients who retain drug sensitivity The most effective drug therapy is administration of a combination of streptomycin for 90 days and isoniazid daily for 18 months This scheme does not result in the emergence of resistance and if the condition is initially sensitive to the medicaments, treatment failure does not occur There is no standard dosage of isoniazid Patients vary in their ability to metabolize isoniazid, thus all patients should, prior to therapy with this drug, have a microbiological assay About 50% of the patients are rapid inactivators, and effective isoniazid therapy is achieved only when aminosalicylic acid (PAS) is added to the regimen Aminosalicylic acid competes with the isoniazid for the latter's acetylating mechanism and permits a higher effective isoniazid blood level Thus effective isoniazid dosage varies and should be determined by the results of the microbiological assay J L Badger said that, although fewer patients are dying of tuberculosis, the number of active cases, many of them unattended by a physician, is increasing and the relapse rate has not declined Although treatment with modern drugs brings about recovery without complications in 80 to 85% of patients, the cause of failure in the remaining 15 to 20% presents an urgent problem The speaker blamed home-care schemes for most of the failures Another factor is mistaking nocardiosis, which does not respond to antituberculosis drugs, for tuberculosis

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

A More Direct Liquefaction of Bronchial Secretion by Aerosol Therapy E R Levine Dis Chest 31 155-168 (Feb) 1957 [Chicago]

Bronchial secretion often presents the most difficult problem in the management of bronchopulmonary disease It is necessary to eliminate this secretion in order to maintain a free airway, but irritation must be avoided Aerosol therapy has become an important aid in the liquefaction of viscous secretion The author evaluates 4 different classes of aerosols and shows that in bronchopulmonary disease an aerosol is needed that contains a liquid, a detergent, and a mucolytic chemical and that, moreover is nonirritating to a normal bronchus Aerosols containing enzymes are not advisable because their use entails risks After careful investigation an aerosol solution was prepared that is referred to as Aerosol Solution No 2 It contains 0 125% of the detergent Tergitol 08 (sodium 2-hexylethylsulfate) and 0 1% of potassium iodide in sterile water

This aerosol was administered to 96 patients with severe chronic or acute coughs and with thick tenacious, viscid, mucopurulent bronchial secretion One characteristic that all these had in common was a spasmodic type of cough that produced noticeable dyspnea and, in some cases, actual cyanosis In all of them, a wheeze was audible and rhonchi and sibilant rales were obvious in the chest before treatment had started All of these patient had previously received broad-spectrum antibiotics for from 5 days to 2 weeks Potassium iodide had been administered by mouth for from 3 to 4 weeks in 50% of the cases, with only a moderate amount of improvement Several types of nebulizers were used The routine was 4 treatment periods of one half hour each daily The volume of aerosol used daily varied from 12 to 25 cc Sixty of the 96 patients were over 40 years of age and 6 were children under 10 years of age Treatment was continued for from 1 week to 6 months Almost all claimed some improvement immediately after the first inhalation, but there was no objective evidence of decreased viscosity or ease of expectoration until approximately 24 hours after therapy was started At the end of the first week of therapy, the sputum was definitely more liquid, and it expectorated easily without spasms of coughing in all of the patients treated No irritation of mucous membranes or toxicity was noted Clinical results were excellent in 66 and good in 30 patients

The Climate Factor in Perennial Respiratory Allergy and Its Relation to House Dust Sensitivity D Ordman Internat Arch Allergy 9 129-145 (No 3-4) 1956 (In English) [Basel, Switzerland]

During studies on allergic patients in various parts of the Union of South Africa, the concept of climatic respiratory allergy' emerged It was found that some allergic patients who are in fairly good condition while they are inland show more or less severe allergic symptoms when they live in coastal regions Pollens, fungi, and other exogenic allergens could be excluded as causal factors in many of these patients, and it is suggested that the development of symptoms while the patients are in coastal regions is due to the combination of high temperature and high relative humidity The question is raised whether in patients with "climatic respiratory allergy the climate as such exerts a physiological effect or whether the combination of high temperature and high relative humidity renders potential sensitizing substances, such as house dust, more highly allergenic The allergenic potency of house dust collected at the coast was compared with that collected inland by the 'threshold-concentration" skin-testing method carried out on allergic patients Coastal house dust was shown to be more highly allergenic than inland house dust There are indications that patients in the group with 'climatic" respiratory allergy are benefited by desensitization with extracts of coastal house dust

Does Tuberculosis Protect Against Cancer? H Grosse Ztschr ges inn Med 12 25-30 (Jan 1) 1957 (In German) [Leipzig, Germany]

Earlier observers were under the impression that tuberculosis protected the patient against cancer, but later the concurrence of tuberculosis and of carcinoma of the lungs was observed with increasing frequency This was generally explained by the fact that, with better treatment, patients with tuberculosis more often reach the "cancer' age According to some investigators the death rate of tuberculous patients even today is still 4 5 times higher than that of the general population Thus malignant tumors should be only about one-fourth as frequent in autopsies on tuberculous patients as in controls of the same age The 34,650 autopsy reports studied by the author revealed 3,115 cases of active tuberculosis and 7,511 cases of malignant tumors, 212 of the malignant tumors, including 58 pulmonary cancers, occurred in the patients with active tuberculosis

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The place of publication of the periodicals appears in brackets preceding each abstract

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Further analysis of these autopsy reports revealed that the incidence of cancer in men without tuberculosis was 24% and in those with tuberculosis 12.5%, and for women the corresponding percentages were 25 and 9. These figures, however, do not prove a negative syntropy of cancer and tuberculosis. On the contrary, since cancers occurred only from 2 to 2.8 times less frequently rather than 4 times less frequently, there seems to be a latent positive syntropy between the two diseases. Thoracic malignant tumors concur with tuberculosis more frequently than do extrathoracic tumors, especially in men. Thus it seems that the local predispotion to malignat tumors is much more definitely influenced by tuberculosis than is the general predisposition to malignant tumors. The author concludes that tuberculosis and other infectious diseases do not protect a patient against cancer, the apparent protection is explained by earlier deaths.

Investigations on Connections Between Acquired Hemolytic Anemias, Classical Blood Groups, Rhesus Factor, Sex, and Age. V. B. Lal and P. Speiser. Blut 3:15-19 (Jan.) 1957 (In German) [Munich, Germany]

Ninety-seven patients with acquired hemolytic anemia verified serologically were studied with regard to the distribution of blood groups, Rh$_0$ factor, sex, age, and several serologic data. There were no great differences between the distributions in these 97 patients and the corresponding distributions in 10,000 persons in the general population that would indicate a dependence of acquired hemolytic anemias on the hereditary serologic characteristics ABO, Rh$_0$, or sex. Clemens and Walsh had found in 1955 that, of 66 patients with acquired hemolytic anemia in Sydney, Australia, a much larger proportion were blood group O than could be expected from the blood-group distribution in the general population of Sydney. In the critical evaluation of this assumption the present authors gained the impression that if more exact mathematical rules are applied no correlation between blood group and acquired hemolytic anemia appears. Studies carried out by these authors likewise revealed no serologic differences between the idiopathic and symptomatic forms of this disease.

Cholelithiasis and Hypothyroidism. J. Warter and J.-P. Weill. Schweiz med Wchnschr 87:101-105 (Feb. 2) 1957 (In French) [Basel, Switzerland]

For several years the authors had noted that signs of hypothyroidism existed in patients in whom cholelithiasis appeared at an early age. They present observations on 15 patients with myxedema or simple hypothyroidism who had cholelithiasis. The existence of gall stones was verified either roentgenologically or by surgical intervention. Nine of the patients had hepatic colic, 3 had slight jaundice and mild pains, and in the other 3 the condition was discovered when cholecystography was carried out because of hypothyroidism. Those with thyroid insufficiency presented varied findings, such as cutaneous signs, a typical facial expression, and mental slowness. The metabolic rate was less than —12 in 5 of the patients and between —2 and —8 in the other 10. The blood cholesterol level was ascertained in 12 of the patients. It was between 1.5 and 2 Gm. per 100 cc. in 3 of the patients, and between 2 and 2.75 Gm. in the other 9. The fixation of radioactive iodine was investigated in only 2 of the patients, and it was low in both of them. It is significant that 8 of the patients were between 20 and 40 years of age, whereas cholelithiasis is generally regarded as occurring later in life. The fact that the group included 3 young men is likewise significant. The 15 patients were observed in the course of 7 years, and in this same period 60 patients with hypothyroidism were observed, that is, 15 of 60 or 25% of patients with hypothyroidism had cholelithiasis. The 60 patients with hypothyroidism included 15 with definite myxedema and of these 5 (33%) had cholelithiasis.

Hypothyroidism is regarded as the primary condition. Disturbances in the evacuation of the gallbladder, in the metabolism of cholesterol, and in hepatic function and endocrine disturbances have been mentioned as possible pathogenic factors. The authors believe that hypotonia of the gallbladder, disturbances in the metabolism of cholesterol and of the bile salts, and the influence of hormonal regulation represent a constellation of factors that would favor the concurrence of cholelithiasis with hypothyroidism. Diagnostic errors will be avoided if cholecystography is performed whenever digestive disturbances appear in patients with hyperthyroidism or myxedema. With regard to therapy, the authors suggest that thyroxin might be used as an adjuvant in cholelithiasis and as a prophylactic in hypothyroid patients, in subjects with a hereditary predisposition to cholelithiasis, or in patients who have been subjected to cholecystostomy.

Prognosis of Chronic Renal Failure 25 Years Ago and To-Day. P. Effersøe. Acta med scandinav 156:449-454 (No. 6) 1957 (In English) [Stockholm]

Of 12 patients with chronic disease of the kidneys in the terminal phase (i. e., with a renal function below 20% for more than 6 months) who were reported on by Van Slyke and co-workers in 1930, 10 died within an observation period up to 67 months. Half of them died after 9 months. These data were compared with those in a series of 37 patients with chronic disease of the kidneys in the terminal phase who were followed up for a similar period of time between 1949 and 1955. Of the 37 patients, 18 died, and half of them were dead after 13 months. Of Van Slyke's patients half had died after having had less than 10% renal function for 4 months. Of the author's patients half had died after having had the same degree of renal impairment for 8 months. At the end of the observation period, only 2 of the 12 patients were alive as compared to 19 of the 37 patients. Of the 19 patients with less than 20% renal function, so far 7 have survived for 6 to 12 months, 6 for 12 to 18 months, and 6 for an average of 22 months. A comparison between the conditions 25 years ago and today, thus, shows that the survival time of patients with chronic renal disease in the terminal phase who died, the survival time of the living, and the ratio of those living at the end of the observation period, all argue in favor of a better prognosis today than 25 years ago It cannot be said whether the improved prognosis in these patients is due to the introduction of antibiotics, more extensive use of blood transfusions, improved electrolyte regulation, or better dietetic treatment

Test of Adrenal Cortical Function by Administration of Corticotropin (ACTH) W Appel Ärztl Wchnschr 12 156-159 (Feb 15) 1957 (In German) [Berlin]

The 17-hydroxycorticoid excretion in the urine of 6 patients with adrenal cortical hypofunction before and after the administration of corticotropin was compared with that in 40 persons with normal function of the adrenal cortex Forty units of a repository preparation of corticotropin were given intramuscularly, and the urine was collected in 8-hour samples for 32 or 56 hours Determination of the corticoid values in the urine was made according to Reddy s technique modified by Forsham The excretion of the 17-hydroxycorticoids in the 24-hour urine specimens of patients with adrenal cortical hypofunction before the administration of corticotropin often did not differ from that of normal persons The basic excretion of 17-hydrocorticoids, therefore, is not sufficient to exclude the presence of adrenal cortical hypofunction After the stimulation of the adrenal cortex by the administration of corticotropin, the values of the 17-hydroxycorticoid excretion in normal persons and in patients with adrenal cortical hypofunction were found to be outside the simple range of variation of both groups Reduced amounts of 17-hydroxycorticoids were detected in the urine of the patients with adrenal cortical hypofunction Repeated administration of the corticotropin the next day did not cause an increase in the values of hydroxycorticoid excretion above 10 mg per 24 hours in the patients with adrenal cortical hypofunction

In patients who have been treated with cortisone, hydrocortisone, prednisone, or prednisolone for prolonged periods before they are subjected to the corticotropin test, this test should be made on 2 successive days, because the hydroxycorticoid excretion values may be of the adrenal-cortical-hypofunction type on the 1st day because of temporary weakening of the adrenocortical function and may reach normal values only after the 2nd test Those who have been treated with cortisone previously should be given prednisone before the corticotropin test in order to prevent the influence of the decomposition products of the administered steroids on the hydroxycorticoid excretion in the urine

The corticotropin test was performed on several patients with various forms of hyperfunction of the adrenal cortex Results showed that hyperfunction of the adrenal cortex (Cushing s syndrome) as a result of adrenal hyperplasia may be suspected when the 17-hydroxycorticoid excretion in the urine increases after the administration of corticotropin to more than 40 mg per 24 hours Patients with diabetic mellitus and obese patients with Cushing s syndrome particularly responded to the corticotropin test with high values of 17-hydroxycorticoid excretion Excessive values of 17-hydroxycorticoid excretion up to 128 mg and of 17-ketosteroid excretion up to 107 mg in the 24-hour urine specimen after administration of corticotropin were observed in a patient with moonface and values of 25 mg for hydroxycorticoid excretion and 35 mg for 17-ketosteroid excretion before the administration of corticotropin A patient with a congenital adrenogenital syndrome treated for 2 months with daily doses of 100 mg of cortisone had urinary levels of 12 or 14 mg of 17-hydroxycorticoid and of 7 6 or 8 8 mg of 17-ketosteroid before the administration of corticotropin and urinary levels of 24 mg of 17-hydroxycorticoid and 20 mg of 17-ketosteroid on the 2nd day of administration of corticotropin The increase in the levels of 17-ketosteroid in this patient was much more pronounced than that in the levels of 17-hydroxycorticoids The reported data confirm the great value of the corticotropin test in the diagnosis of adrenal cortical hypofunction and in the etiological differentiation of the various forms of hyperfunction of the adrenal cortex

Periarteritis Nodosa Four Cases R Armas Cruz, J Harnecker, O Gazmuri and others Rev med Chile 84 525-538 (Oct) 1956 (In Spanish) [Santiago, Chile]

Periarteritis nodosa is a collagen disease characterized by arterial inflammation and fibrinoid degeneration It is associated with nodular skin lesions, involvement of the visceral disorders of micturition and changes of the chemical constitution of the urine The diagnosis is made by the presence of a febrile infection, accompanied by diffuse articular pain, acute abdominal disorders, renal disease with or without hypertension, and symptoms of polyneuritis Allergic angiitis should be ruled out As the disease progresses the arteries of the most important viscera become involved The pulmonary arteries are spared, unless pulmonary hypertension or other pulmonary complication are present Generally the disease follows a rapid course to a fatal end Improvement of some of the symptoms has been reported from the use of corticotropin or cortisone, but this did not control the neurological symptoms In several patients, recurrences occurred on discontinuation of hormone treatment and death occurred even if the patients had shown a favorable response to the treatment Better results are reported from the use of prednisone and prednisolone Four cases with typical symptoms are reported The 1st patient died of cardiorenal insufficiency and pleuropneumonia Autopsy showed involvement of the coronary, renal, pancreatic, intestinal, and subarachnoid arteries The 2nd patient died of arterial thrombosis and purpura Autopsy showed involvement of the heart, spleen, and kidneys The 3rd patient had an abdominal form of the disease with obstructive jaundice A biopsy specimen confirmed the diagnosis When last seen the patient was in a remission and was taking cortisone The 4th patient had pneumonia, a buccal abscess, suppurative sinusitis, and renal insufficiency Autopsy showed it was involvement of the coronary, renal, and testicular arteries

SURGERY

Complications After Operations for Esophageal Atresia N Urban Ztschr Kinderh 79 194-202 (No 2) 1957 (In German) [Berlin]

Fifteen of 70 children who were operated on for esophageal atresia could be followed up for long periods *Unfortunately the life expectancy is favorable* for only a certain percentage of these children, because in many the condition is inoperable and many have other deformities or die of aspiration pneumonia, which is a frequent complication of this operation Other complications impairing the function of the esophagus operated on because of atresia may develop slowly and become evident only after a long time The author lists the types of complications that may interfere with the oral intake of food, the further development of the esophagus, or may endanger the *life of the child Interference with the intake of food* by a stricture in the region of the anastomosis resulting from shrinkage at the site of suture was the most frequent of the late complications The food intake of these children becomes gradually more difficult Aspiration of small quantities of food may eventually produce an aspiration pneumonia The upper part of the esophagus may become dilated and even pouchlike, vomiting may increase, the pouch may spill over while the infant nurses or drinks, and, finally, the infant may retain a few swallows only when erect In *one patient with this complication bougienage proved* effective

Cicatricial distortion of the esophagus may result *also from scars in the region of the mediastinum* and the right lung, the esophagus may be pushed out of line, and diverticula may form These conditions may also interfere with drinking Suture insufficiency is the most dangerous of the late complications of operations for esophageal atresia, it threatens especially when the anastomosis is under tension, that is, if a large defect has to be bridged Fistulas or pseudodiverticula to the mediastinum or to the lung may form and may cause pleurisy or refractory pneumonia This complication caused 2 of the 4 deaths in this group of children Foreign bodies may become lodged in the esophagus and may hinder the passage of food

Experiences in Closed Surgical Correction of Interatrial Septal Defects A S Traisman and H S Traisman Quart Bull Northwestern Univ M School 31 49-57 (No 1) 1957 [Chicago]

The intracardiac location of interatrial septal defects has hampered attempts at closure Both hypothermia and extracorporeal circulation techniques have been developed, with the treatment of interatrial septal defects among their specific objectives, but, since these techniques are still risky and also require prolonged preparation, the closed techniques for repair of interatrial septal defects are still being used at the Children s Memorial Hospital in Chicago Three major closed methods for repairing interatrial septal defects are presented the Gross technique of attaching a rubber well to an incision in the lateral wall of the right atrium, the Sondergaard technique of introducing a constricting suture along the rim of the interatrial septal defect, and the Lam technique of using a double-pointed needle to introduce sutures through the interatrial sulcus into the anterior rim of the interatrial septal defect

In operations on 22 children, only the latter 2 closed methods were used No occasion arose in the author's experience in which the well technique could not be replaced by one of the other 2 shorter methods The Sondergaard method was used in 4 children and the Lam technique in 18 The Sondergaard technique was particularly applicable to small interatrial septal defects of the ostium secundum type In the larger interatrial septal defects of this type, it is usually advisable to introduce several interrupted sutures in order to approximate the anterior and posterior walls of the defect without seriously narrowing the chamber of the left atrium Of all the available techniques, the safest and most efficient method is that made possible by use of the double pointed needle popularized by Lam The author concludes that the closed methods leave a great deal to be desired and that some type of direct closure that can be done with accuracy and low mortality will probably supplant them

Oesophageal Reconstruction in Children Using Intrathoracic Colon C D Sherman Jr and D Waterston Arch Dis Childhood 32 11-16 (Feb) 1957 [London]

Sherman and Waterston used 2 methods for esophageal reconstruction in children The 1st was devised by Waterston and consists in transplantation of the transverse colon isoperistaltically into the left posterior part of the chest on a pedicle containing the left colic artery The operation was performed 1st on an infant with atresia of the esophagus without tracheoesophageal fistula The reconstruction required 4 operations, which were carried out over a period of about 9 months About a month after the 4th operation the infant s stomach ruptured through a diaphragmatic opening This hernia was repaired, and since then the child has continued to thrive and has developed normally He eats everything and has no difficulty in swallowing The method has the advantage of preserving intact the all important cardiac sphincter mechanism between the esophagus and the stomach Two other babies in whom this technique was used for esophageal reconstruction are now 4 and 5 years of age respectively, and are both thriving In a 4th child an attempt was made to combine stages 2 and 3 into one operation The colonic loop was pulled up too tightly into the neck, thereby bowstringing the supplying artery The colonic loop became gangrenous and the child died a few hours after operation

In the second method of reconstruction the ascending colon is transplanted isoperistaltically in the retrosternal position This method was developed by Sherman In infants with esophageal atresia of tracheoesophageal fistula, it is wise to delay reconstruction The cervical esophagus is brought out in the left side of the neck, and a gastrostomy is performed on the following day At a later date, esophageal reconstruction is performed A longitudinal incision extending to the xiphoid is made and the ascending colon mobi lized by cutting the lateral attachments The length of the ascending colon is estimated, and the collateral vascular supply evaluated by placing a bull-dog clamp on the ileocolic artery During the waiting period to ascertain whether the blood supply to the cecum is maintained, an appendectomy is performed The ileum is sectioned from 4 to 6 in proximal to the ileocecal valve This leaves a segment of ileum that can be anastomosed to the cervical esophagus if it proves necessary The transverse colon just to the left of the middle colic artery is sectioned, and, after the sectioning of the ileocolic vessels, the transplant can be swung to the neck, the blood supply then coming through the middle colic vessels The transplant is carried through the substernal tunnel, which is cleared by blunt dissection in the anterior mediastinum The reconstruction is terminated by end-to end anastomosis of the cecum or ileum to the cervical esophagus, by anastomosis of the lower end of the transplant into the anterior wall of the stomach, and by end-to end ileotransverse colostomy The gastrostomy opening is left in place and may heal spontaneously or may be closed at a later date

Studies of the colonic blood supply have shown that at times one or other of the above methods may be impracticable because of lack of collateral circulation Other possibilities include (1) use of the transverse colon with the blood supply based on the middle colic and right superior colic vessels, (2) use of the transverse colon with the blood supply based on the middle colic and right superior colic vessels, (3) use of transverse colon with the blood supply based on the middle colic artery and left superior colic artery, (4) use of the descending colon with the blood supply based on the middle colic artery, (5) use of the cecum and terminal ileum with the blood supply based on the ileocolic artery, and (6) various methods of using the jejunum and stomach Reconstruction of the esophagus by colon transplant is still in the developmental stage, but experience suggests that further trial and evaluation are worth while

Treatment of Portal Hypertension in Children P Sandblom and C Ekman Arch Dis Childhood 32 61-64 (Feb) 1957 [London]

Of 82 patients operated on because of hypertension, 33 were under 20 years of age Splenoportography and measurement of the intrasplenic pressure proved useful in the establishment of a preoperative diagnosis in children and adults The main indication for surgery was esophageal hemorrhage The purpose of treatment was to reduce portal hypertension and, thereby, the tendency to esophageal hemorrhage by the establishment of a shunt between the portal and the caval systems In childhood the block was most frequently extrahepatic, while intrahepatic block was usually seen in patients with hepatic cirrhosis between the ages of 40 and 60 years An anastomosis was made in 7 of 8 patients with intrahepatic block, in the 8th only splenectomy was possible Of the 7 patients 5 have been free of symptoms for from 1 to 7 years The other 2 died 3 and 2 years after the operation The patients with the extrahepatic block included 21 ranging in age from 2 to 20 years who previously had not undergone splenectomy Eighteen of these were subjected to splenorenal anastomosis with suture Nine of these remained symptom-free during a follow-up period of from 1 to 4 years, whereas hemorrhage recurred in the other 9 patients, 6 of whom died Hemorrhages recurred also in the 2 patients in whom splenorenal anastomosis was established with the aid of a Vitallium tube, and 1 of these died The 1 patient who was subjected to splenectomy also died

Of 17 patients who had previously undergone splenectomy, 4 were subjected to anastomosis of small vessels and 2 to portacaval anastomosis All 6 of these patients later had hemorrhage, and 2 of them died Direct attack on the esophageal varices, i e, intraesophageal division of varices or partial esophagogastrectomy gave more encouraging results, in that, of the 6 patients treated in this way, only 1 had a recurrence Of 2 patients treated by mediastinal tamponage, 1 died and the other remained symptom-free The 3 patients who were subjected to laparotomy or Talma's operation died Only 6 of the 17 patients were symptom-free 1 year later While the primary mortality rate was higher in the group with intrahepatic block, the tendency to recurrence was much higher in the group with extrahepatic block, especially in the subgroup of patients who had previously undergone splenectomy A comparison of the results of portacaval anastomosis and splenorenal anastomosis in the entire series revealed that, after portacaval anastomosis, all of the 26 patients who survived were free from recurrences, while 13 of 33 survivors after splenorenal anastomosis had recurrences The more favorable results of portacaval shunt can be explained by the fact that the lumen is larger, and, therefore, the operation involves less risk of occlusion than does splenorenal anastomosis

Total Adrenalectomy for Malignant Hypertension W Van T Hoff Quart J Med 26 149-160 (Jan) 1957 [Oxford, England]

If the presence of papilledema is taken as the criterion for the diagnosis of the malignant phase of hypertension, nearly 80% of the patients not treated die within a year of the diagnosis Although there is no good evidence that adrenocortical hormones play an initiating role in essential hypertension, they do play a part in the maintenance of normal, and probably also of raised, blood pressure Treatment of essential hypertension by partial adrenalectomy was first reported in 1934 by DeCourcy, who believed that the resulting improvement in 8 patients was due to removal of the adrenal medulla Since the advent of replacement therapy, complete removal of the adrenals has been carried out in many patients, but in nearly all of them the operation was combined with some form of sympathectomy, which makes it difficult to assess the value of adrenalectomy alone

The author studied the effect of adrenalectomy in 5 patients with malignant hypertension and good renal function All were men, aged from 26 to 57, and before operation they had a mean resting diastolic blood pressure of 130 mm Hg or more Four patients had blurring of vision, and all 5 had papilledema, retinal hemorrhages, and exudates One patient was admitted to hospital with hematuria None gave a history of angina pectoris or showed any evidence of left ventricular or congestive heart failure After adrenalectomy all the patients were maintained on cortisone alone They felt better, their headaches improved, and they were all allowed to return to work in 4 months Papilledema, hemorrhages, and exudates improved in all, but none showed a significant reduction in blood pressure When further attempts were made to lower the blood pressure by reducing either the cortisone dosage or the salt intake, the patients showed signs of hypoadrenalism before there was any reduction in blood pressure While all the patients derived symptomatic benefit from adrenalectomy, there was no evidence that their lives were prolonged

Observations on the Use of 5-Hydroxytryptamine in Surgery L Sala Arch sc med 81 534-540 (Dec) 1956 (In Italian) [Turin, Italy]

The administration of 5-hydroxytryptamine had a beneficial effect on 42 patients subjected to appendicectomy, 8 to gastroresection, 10 to hysterectomy, and 10 to cholecystectomy All operations were performed under general anesthesia after premedication with morphine and atropine A dose of from 5 to 10 mg of the drug was injected intravenously, and, after a few seconds during which the respiration and blood pressure were controlled, narcosis was induced with pentothal and then the gas was administered A 2nd dose of from 5 to 10 mg of the drug was given to patients subjected to longer operations Bleeding was reduced markedly The best results were obtained in patients subjected to cholecystectomy or hysterectomy The little blood that was lost was denser than the blood lost by patients to whom the drug had not been given

The Clinical Control of Red Cell Loss in Burns E Topley and D MacG Jackson J Clin Path 10 1-19 (Feb) 1957 [London]

The development of anemia in badly burned patients has been attributed to bleeding granulations, blood loss at operation, and an impaired rate of red blood cell formation Only recently has an unexplained internal disappearance of red blood cells been considered to play a major role This raises such questions as 'When does this destruction occur?," "How great is it?,' and 'How urgent is replacement?" The data presented were obtained in a series of 150 patients In 86 patients the erythrocyte volume was studied Discussing possible ways of assessing red blood cell loss, the authors admit that they are not sure that some degree of oligemia is harmful, conversely they are not sure that keeping the blood volume normal at the price of using more plasma and producing more edema is beneficial, but prevention of more than a 20% reduction in blood volume seems reasonable Control of the blood volume must depend on serial erythrocyte volume and hematocrit measurements, if temporary oligemia is to be prevented This is possible only in a unit that specializes in the treatment of burns Massive red blood cell loss occurs most often in patients with extensive burns who have a chance of survival, and the prevention of oligemia in these patients is most rewarding Routine blood transfusion and serial hemoglobin estimations are not indicated in patients with burns involving less than 10% of the body surface, especially in those with less than 2% of full-thickness skin loss In patients with from 10 to 20% total area burned (usually from 2 to 10% full-thickness skin loss), early blood transfusion is probably unnecessary, but serial hemoglobin estimations every 2 or 3 days are indicated until less than 2% full-thickness skin loss remains unhealed In patients with from 20 to 40% total area burned (usually 10 to 30% full-thickness skin loss) a blood transfusion equal to 20% of the patient's blood volume should be given in the first 12 hours and the hematocrit kept between 10 and 20% above normal for the patient's weight and height, assuming there is 0 to 10% red blood cell loss A further 20% should be given in the next 36 hours if indicated clinically by oliguria, cold extremities, cyanosis, hemoglobinuria, or more than 2% microcytes in the head of a stained blood film on admission Subsequently repeated hemoglobin tests are required In patients with over 40% total area burned (usually over 30% full-thickness skin loss) 20% of the patient's blood volume should be given in the first 12 hours and the hematocrit kept at normal for the patient's height and weight, assuming 20% red blood cell loss One should then be prepared to give a further blood transfusion equal to 20 to 60% of the patient s blood volume in the next 36 hours if indicated clinically These are the patients in whom serial blood volume estimations are most valuable, provided the practical errors of such determinations are appreciated Subsequently, repeated hemoglobin tests are required

Elective Resection of the Colon for Diverticulitis M K Bartlett and W V McDermott M Rec & Ann 51 329 331 (Feb) 1957 [Houston, Texas]

Elective one-stage resection of the sigmoid was performed on 43 (60%) of 71 patients with diverticulitis in the course of 3 years Indications for elective resection consisted of an established pattern of recurrent attacks of acute diverticulitis, continuing symptoms of residual inflammation or of some degree of obstruction, persistent bleeding, the presence of a fistula, persistent urinary symptoms, and the suspicion of carcinoma Two of the 43 patients died, 1 of peritonitis and 1 of a pulmonary embolus Four other patients had complications, such as sepsis of the wound in 2 and atelectasis and pericarditis in one each Three stage resection was performed on 28 of the 71 patients There were no operative deaths The choice of a preliminary transverse colostomy was made in all of these patients because of the presence of a large inflammatory mass, frequently associated with perforation and abscess formation Three patients died in the immediate postoperative period after a transverse colostomy for what proved to be acute diverticulitis and carcinoma of the sigmoid with perforation

Diverticulosis of the colon is a relatively common condition, the diagnosis being established by barium enema or at autopsy These diverticula are acquired lesions, usually multiple, and may occur anywhere in the intraperitoneal colon but are most common in the sigmoid The presence of an area of acute diverticulitis in the sigmoid produces the familiar clinical aspect of pain and tenderness in the lower part of the abdomen, nausea and vomiting, fever, and an elevated white blood cell count Muscle spasm may be present in varying degrees, and a mass may be felt either by abdominal or bimanual examination The acute attack may progress to perforation of an inflamed diverticulum The perforation may erupt into the free peritoneal cavity with the development of spreading peritonitis, or a localized abscess may form that may occasionally result in a fistula either externally or into an adjacent organ The morbidity associated with the major complications of diverticulitis and the prolonged hospitalization and invalidism attendant on multiple stage operations have provided the stimulus for a more aggressive attitude toward the use of elective one-stage resection of the involved portion of the colon to forestall such complications The inflamed area is usually of quite limited extent, even in a fairly acute phase of the disease, and even though diverticula may be present both above and below the inflammatory zone This makes possible a relatively easy resection with normal intestinal wall available for suture both above and below the resected segment The process seldom extends down to the pelvic floor and is usually confined to the free sigmoid loops The operation is not without danger, and every effort must be made to be sure that the estimated risk of the disease is greater than that of the proposed treatment

GYNECOLOGY & OBSTETRICS

A New Factor in Maternal Mortality H B Turner J Kentucky M A 55 133-136 (Feb) 1957 [Louisville, Ky]

Maternal deaths have declined 85% in the past 20 years The principal causes had been sepsis, toxemia, and hemorrhage Toxemia as obstetric killer is today in 1st place, but, while improvement is being made in one direction, a new difficulty appears from another Anesthesia is the new killer, ranking 5th among the causes of maternal death Data were collected from the state of Michigan for the years from 1950 to 1954 Thirty-four of the 515 maternal deaths were the direct or indirect result of anesthesia These data were compared with those of the city of Memphis, Tenn, where, during the period 1946-1955, of 79 maternal deaths, 11 were caused by anesthesia On the other hand, in the Baptist Memorial Hospital from 1947 to 1956, there were 22,086 live births Of 11 maternal deaths in this series none were caused by anesthesia

In most of the cases, anesthesia was regional, saddle block being the most common In all instances, general anesthesia was induced by interns or residents giving nitrous oxide or ethylene for the spontaneous delivery of multiparas Laryngospasm occasionally occurs, and the danger of aspiration of vomitus is always present Efforts should be made to increase the number of well-trained anesthetists and to adequately distribute such personnel among all services requesting anesthesia Local anesthesia should be used in poor-risk cases and in situations in which regional methods are contraindicated Women have come to expect relief of the pains of childbirth Successful labor and delivery can, however, occur without maternal medication of any kind Few, if any, women ever died from the uncomplicated pains of childbirth

Poliomyelitis in Pregnancy A Report of 79 Cases in Connecticut M E Rindge New England J Med 256 281-285 (Feb 14) 1957 [Boston]

During the 5-year period 1951-1955, a total of 2,167 cases of poliomyelitis were reported to the Connecticut State Department of Health Males predominated in the age groups under 15 and females in the age groups over 15 years Females 15 years of age or over accounted for 456 of the cases reported, and, of these, 79 or 17 3% were known to have been pregnant when they became ill This is much higher than the estimate given by Weinstein, Aycock, and Feemster that 7% of women aged from 20 to 40 years are pregnant at any given time, and agrees with the accepted idea that pregnant women are more susceptible than nonpregnant women to poliomyelitis The danger of contracting poliomyelitis is apparently greatest in the 2nd trimester of pregnancy, the danger of loss of the fetus greatest in the 1st, and the danger of maternal mortality in the 3rd trimester The Connecticut figures support the theory that there is a tendency for poliomyelitis to occur in the 1st trimester of pregnancy in women who are carrying a male fetus and in the 3rd trimester in those carrying a female fetus as well as the theory that some factor related to household contact with children or associated with the presence of children in the household may account for the increased incidence of poliomyelitis observed in pregnant women It was also observed again that poliomyelitis in pregnancy, particularly in the early months of pregnancy, may lead to a general retardation in development of the infant

DERMATOLOGY

Fractionation of 17-Ketosteroids in Patients with Exfoliative Dermatitis Following Long-Term Cortisone Therapy T Putkonen, S Pesonen, K Rehtijarvi and R Kristoffersson Acta dermat -venereol 36 450-463 (No 6) 1956 (In English) [Stockholm]

Corticotropin secretion and adrenocortical function are reduced during the prolonged administration of cortisone in patients with certain skin diseases The authors studied the sudden interruption of hormone therapy in 3 men with chronic generalized exfoliative dermatitis who had been treated with cortisone, corticotropin, and hydrocortisone for 27 months, 26 months, and 11 months respectively They had taken hydrocortisone only for the last 5 or 6 of these months Fractionated determination of the 17-ketosteroids was carried out immediately before, during, and after the treatment-free period The interruption of treatment was best tolerated by a 44-year-old man, whose maintenance dose was only 60 mg of hydrocortisone, whereas, in the other 2 (aged 54 and 29 years), whose maintenance doses were 120 and 220 mg., respectively, there was severe oozing of the skin lesions, loss of weight, and a decline in the plasma proteins. During hydrocortisone therapy the urinary excretion of 17-ketosteroids and of dehydroepiandrosterone was low in all 3 patients. Immediately after the suspension of treatment, the excretion of 17-ketosteroids increased gradually, but later it declined again.

The most rapid and greatest increase was observed in the patient with the lowest maintenance dose. He also showed the greatest increase in the excretion of the dehydroepiandrosterone originating in the adrenal cortex, indicating that his adrenocortical function improved most. The patient with the largest maintenance dose (the 29-year-old man) likewise showed an increased excretion of dehydroepiandrosterone during the suspension of treatment, but no increase was seen in the 54-year-old man, who showed the least tolerance for the cessation of hormone treatment presumably because the adrenocortical atrophy was farthest advanced in this patient. His excretion of metabolites of hydrocortisone (11-oxy-17-ketosteroids) also was much higher during treatment than during nontreatment, which was not the case in the other 2 patients. The excretion of 17-ketosteroids originating in the testes, namely androsterone and etiocholanolone, was low in all patients during hydrocortisone therapy. After discontinuation of hormone administration, the androsterone excretion increased but that of etiocholanolone decreased, the combined level of the two thus remaining practically unchanged. These observations point to a functional insufficiency of both the testes and the hypophysis.

Histology and Cytochemistry of Human Skin: X-Irradiation of the Scalp. W. Montagna and H. B. Chase. Am. J. Anat. 99:415-445 (Nov.) 1956 [Philadelphia].

This report is concerned with changes that take place in the hair follicles during a period of 11 weeks after exposure to roentgen irradiation. Forty biopsy specimens of scalp were studied: 36 from white and Negro children from 5 to 9 years of age and 4 from adults. The responses to roentgen irradiation were identical in whites and Negroes and in the children and adults. The irradiation of hair follicles stops all mitosis in the cells of the matrix. These cells fragment and disappear during the 1st week. For 3 to 5 weeks after treatment, the lower half of each active follicle continues to degenerate, the hair drops out, and the entire follicle is reduced to a cord of cells. Damaged cells accumulate glycogen and lipid and lose their basophilia before they fragment. At the end of degeneration this cord is composed of the cells from the outer sheath in the upper half of the follicle and is comparable to a normal, quiescent follicle. The lower half of the follicle is dispensable and transient, and the upper half is the permanent part; from this are formed future generations of hair follicles.

While the bulb is degenerating and retreating upward, its base is never detached from the dermal papilla. During this time the dermal papilla loses its metachromasia, its stainability with the periodic acid–Schiff stain and its alkaline phosphatase activity. These properties are regained after 10 or 11 weeks, when the follicles are again growing normally. During the early period of follicle degeneration the cells of the dermal papilla engulf the melanin, lipids, and glycogen that are released by the degenerating cells of the bulb. These substances disappear after 4 weeks when large scale degeneration of the follicle has ceased. The dermal papilla, then, not only contains inductive substances that guide the growth and differentiation of hair follicles, but its cells also act as phagocytes. The vitreous membrane is a sensitive index of damage to hair follicles. Shortly after exposure to roentgen rays, it becomes thick and wrinkled and attains its maximum thickness after about 1 week. It remains very thick for 5 to 7 weeks until the follicle again becomes active. The membrane then becomes fragmented.

OPHTHALMOLOGY

Autokeratoplasty: Covering of Donor-Site with Lyophilized Human Cornea. B. Alberth. Ophthalmologica 133:61-64 (Jan.) 1957 (In German) [Basel, Switzerland].

Autoplasty is the best solution for corneal transplantation, because the transparency of the transplant is not impaired by immunobiological processes. Several procedures are available for the disk-shaped autokeratoplasty. Transplantation of a disk of the clear cornea of a blind eye to the opacity of the other eye was performed in the 69-year-old patient whose history is presented. After a transparent corneal disk from the right, blind eye had been transplanted to the leukoma in the left eye, the defect of the donor site was covered by a slice of cornea obtained from a lyophilized human cornea. The authors had waited for an opportunity to use such material, and they believed that since the donor eye to be grafted was blind, the method could be tried. A human eye that had been preserved by the "adsorptive lyophilization" method of Bornemissza-Szilagyi and that had been kept in a sterile tube at room temperature for 152 days was taken out 30 minutes before the operation and was regenerated in isotonic sodium chloride solution at 37 C (98.6 F). A disk 5-mm in diameter was trephined out of this eye and was placed over the defect in the right, blind eye of the patient. This corneal graft grew in but became cloudy, whereas the autotransplant remained transparent.

Neoplasms of the Notochord: Report of a Case of Basilar Chordoma with Nasal and Bilateral Orbital Involvement. C. D. Binkhorst, P. Schierbeek and G. J. W. Petten. Ophthalmologica 133:12-22 (Jan.) 1957 (In English) [Basel, Switzerland].

The notochord is a column of cells formed in the central axis, ventrally from the neural tube. In vertebrates it is a transitory organ, its supporting function being taken over by the vertebrae developing around it, but vestiges of chordal tissue may remain and in these chordomas may develop. A 70-year-old woman with this rare form of tumor was seen because of nasal obstruction and increasing frontal headaches Her friends had observed her protruding eyes and a "polyp' showing in her right nostril Twelve years previously she had completely lost her eyesight At that time tumor of the hypophysis had been diagnosed, and a tumor dose of 2,000 r had been applied Examination in 1955 revealed protrusion of both eyeballs with conspicuous lateral displacement Between the medial angles of the eyes and the ridge of the nose a tumor mass was apparent, and from the right nostril a glassy mass of tissue protruded Similar tissue was found in the left half of the nose, and the nasopharynx was also obstructed with it These and other findings and the course of the process suggest a slow-growing neoplasm causing destruction of the base of the skull with invasion into the facial part of the skull Intracranial growth had probably remained limited to the region of the optic chiasm The glassy appearance of the tumor suggested chordoma

In 3 sessions about 65 Gm of the tumor mass was removed by the endonasal route The patient felt much relieved after this, the patency of the nose was reestablished, and the headache disappeared Five weeks later the right frontal and ethmoidal sinuses were widely opened The floor of the frontal sinus and the frontal wall of the ethmoid proved to be missing Another 50 Gm of tissue was removed The histological examination of the tissue confirmed the diagnosis of chordoma The authors confine their discussion to chordomas originating in vestiges of the craniocervical notochord In this area 6 points of origin exist, but ectopic localizations have been described in the mandible and in the frontal sinus On studying the cases described in the literature, the authors found that the onset is fairly often characterized by a more or less typical neuroophthalmological syndrome, consisting of fronto-orbital headache, loss of visual acuity, limitation of the visual fields of 1 or both eyes, respectively, and paresis of the eye muscles In cases of extracranial growth exophthalmos may occur, coupled with an early invasion into the nasal sinuses and the nasopharynx The clinical differentiation from other tumors of the base of the skull may be difficult, particularly with respect to subtentorial foci, tumors of the pontine angle, tumors originating in the paranasal sinuses and the nasopharyx, and disorders near the optic chiasm An important point in the differential diagnosis is the fact that basilar chordomas, with their strong tendency to extracranial growth, give rise to intracranial complications only at a late stage The growth of a chordoma is nearly always slow, but, with respect to bone, it is particularly destructive Therapy is usually palliative

The Correction of Exophthalmos and Levator Spasm

R E Moran Plast & Reconstruct Surg 18 411-426 (Dec) 1956 [Baltimore]

Dimmed vision, total blindness, or even death occurred in patients with malignant exophthalmos as late as 1931, when Naffziger relieved severe exophthalmos by decompression of the orbital contents into the anterior cranial fossa While orbital decompression was a distinct advance, Naffziger's operation was a formidable one and a less radical approach seemed desirable Dollinger in 1911 had used lateral decompression of the orbit successfully in a patient with malignant exophthalmos, and others had described techniques for decompression into the sinuses The author together with the late Dr Shugrue carried out experiments in the anatomic laboratory with the hope of finding a safer approach for decompression in patients with symptoms not severe enough to warrant the use of the formidable Naffziger technique They worked out a simple technique for removing the lateral orbital wall (without disturbing the orbital rim), and opening the orbital fascia to permit decompression of its contents into the temporal and infratemporal fossae

The author described this operation in 1937, and he has used it so far in 33 patients Ten were under 30 years of age, 12 were between 30 and 40, and 11 were over 40 Decompression through the lateral wall of the orbit was performed bilaterally in 20 of the patients There were 55 decompression operations on the 33 patients, with no deaths In patients in whom the exophthalmos was stationary and levator spasm was absent at the time of operation, the drop in exophthalmos was more rapid and more striking than in those in whom the levator spasm was a postoperative factor and active disease was present in the orbit (as evidenced by conjunctival edema, etc, at the time of operation) In the former patients, the average drop in exophthalmos readings was 6 mm, whereas in the latter, the average drop was under 5 mm When no levator spasm existed after decompression, the ocular muscles regained their tone more quickly, particularly in those with paresis of the superior rectus muscle The edema and conjunctival irritation subsided more quickly when levator spasm was present When levator spasm was marked in only 1 eye, the exophthalmos was usually more pronounced on that side The levators were operated on as an adjunct to decompression in 12 patients and, bilaterally, in 9 patients In 3 patients with unequal exophthalmos, only 1 eye was operated on In 2 patients with unilateral exophthalmos, the levator was surgically weakened and no decompression was necessary Because of a residual elevation of the temporal side of the lid, the first 4 patients were reoperated on with satisfactory results

THERAPEUTICS

On the Use of Salts of Rare Earth Metals (Neodymium Combined with Praseodymium) for Prophylaxis of Thrombosis

W Osten Ärztl Wchnschr 12 107-112 (Feb 1) 1957 (In German) [Berlin]

A series of 46 selected surgical patients was studied Because of their constitution, the condition of their circulation, their age, and the operative trauma, they were considered to be threatened by thrombosis and were treated prophylactically with a 1% solution of a compound (Helodym 88) containing 65 to 70% of the neodymium salt and of 35 to 30% of the praseodymium salt of beta-acetylpropionic acid The recommended initial dose for a patient weighing 154 lb (70 kg) with a normal (100%) thromboplastin time is 7 cc, that for a patient with a thromboplastin time of 80% of normal 5 6 cc , and that for a patient with a thromboplastin time of 120% of normal 8 4 cc of the 1% solution of Helodym 88 Additional doses depend on the values of prothrombin and proconvertin A reduction to from 50 to 30% of the normal may be sufficient for prophylactic purposes Slow intravenous administration appeared to prevent side-effects Except in patients who underwent operations on the stomach, intestine, and thyroid and those who were subjected to operations associated with great loss of blood treatment was started from 6 to 10 hours after the operation or even before the operation In the exceptional patients, treatment was started on the evening of the day of operation or on the morning of the 1st postoperative day Treatment was continued for from 4 to 10 days The duration of treatment is longer in older than in younger patients because of a greater tendency to develop thrombosis and longer postoperative rest in bed Treatment should be discontinued gradually within 1 or 2 days, with reduced doses Dose and duration of the treatment as given represent a general guide, but they must be adapted to the individual need depending on the tendency to bleed or clot Treatment with Helodym 88 is contraindicated after neurosurgical operations, during pregnancy and menstruation, and in patients with a particular tendency to bleeding

Thromboembolic accidents did not occur in any of the 46 patients who were treated with Helodym 88 The drug inactivates the prothrombin and proconvertin circulating in the blood by forming a complex of α_2-globulin (i e , prothrombin plus proconvertin) with the rare earth metals The effect of Helodym 88 can not be counteracted by giving vitamin K_1 Prolonged treatment with Helodym 88 causes blockade of the synthesis of prothrombin and proconvertin in the liver Impairment of the hepatic parenchyma that was present before starting Helodym 88 treatment may become worse as a result of the treatment The patients should be placed on a diet free of oxalates (rhubarb, gooseberries) to prevent renal damage in the course of the treatment with Helodym 88

The Anticoagulant Effect of a New Coumarin Derivative—Sintrom (Geigy)—and Its Control by Standardized Clotting Time G A Mayer and W F Connell Canad M A J 76 272-278 (Feb 15) 1957 [Toronto]

Anticoagulant treatment with Sintrom, a new coumarin derivative, was given to 42 patients, 22 of whom had acute myocardial infarction, 12 acute coronary insufficiency, 3 pulmonary embolism, 4 peripheral thrombophlebitis, and 1 cerebral embolism The patients were studied for a period of 866 treatment days On 18 of these days heparin only was administered, for 128 days heparin and Sintrom were given concurrently, and for 720 days Sintrom was given alone Sintrom was started on the 1st day with a dose of from 20 to 24 mg On each of the following 3 days the dose was reduced by 4 mg , the total dose for the day being given at noon after food Control of anticoagulant treatment was maintained with the aid of the standardized clotting time measured in unmodified venous blood immediately after withdrawal according to Mayer s method described in THE JOURNAL (161 806 [June 30] 1956)

The therapeutic aim, to keep the standardized clotting time between 15 and 20 minutes, was achieved in 71% of treatment days when Sintrom was the sole anticoagulant used On 15% of treatment days the standardized clotting time was less than 15 minutes, on 12% it was between 21 and 25 minutes, and on 2% between 26 and 30 minutes Sintrom produced a therapeutic prolongation of the standardized clotting time after an average induction period of 4 3 days No hemorrhagic accidents or thromboembolic complications were noted when the standardized clotting time was maintained within the authors desired range When treatment with Sintrom was discontinued, the standardized clotting time returned to its pretreatment level within from 48 to 72 hours Under the conditions of this study, Sintrom proved to be a satisfactory oral anticoagulant for short-term therapy Sintrom therapy was adequately and easily controlled with the aid of the standardized clotting time No significant correlation was found between the Quick one-stage prothrombin test and the standardized clotting time

Phenylbutazone Effects of Its Administration for Prolonged Periods W C Kuzell, R W Schaffarzick, W E Naugler and B M Champlin New England J Med 256 388-392 (Feb 28) 1957 [Boston]

Phenylbutazone was given for from 12 to 54 months to 34 men and 66 women with a variety of rheumatoid disorders, 73 of whom were in the 4th, 5th, and 6th decades of life Not a single patient was previously satisfied with the relief afforded by the salicylates All the patients initially had a favorable therapeutic response to phenylbutazone and freedom from untoward side-effects of the drug permitted its prolonged administration The range of the daily dose of phenylbutazone varied between 100 and 600 mg The usual daily dose was 300 or 400 mg When the drug was given intramuscularly the daily amount varied from 0 6 to 1 0 Gm for 2 or 3 days, followed by oral administration as described above

Of the 100 patients, 60 had rheumatoid arthritis, 23 ankylosing spondylitis, 4 psoriasis with arthritis, and 13 mixed arthritis (rheumatoid arthritis and degenerative joint disease) Of the 60 patients with rheumatoid arthritis who received phenylbutazone for 54,180 patient-days, 53 had an initial grade 1 or 2 therapeutic response in accordance with the criteria of the American Rheumatic Association In 46 of these 53 the favorable response was maintained for the duration of the treatment All of 7 with a minor (grade 3) initial therapeutic response maintained the original degree of improvement None of these 7 patients progressed to grade 1 or 2 regardless of duration of the treatment Only 4 of the 60 patients discontinued treatment, 3 for various reasons, and the 4th died of hemorrhage from a duodenal ulcer while taking phenylbutazone and hydrocortisone concurrently All the 23 patients with ankylosing spondylitis who received phenylbutazone for 16,650 patient-days obtained initial major improvement that was maintained throughout the period of treatment Two discontinued treatment, 1 because of nervousness and 1 because of peptic ulcer The 4 patients with psoriasis and arthritis received the drug for 680 patient-days and had major improvement The 13 patients with mixed arthritis received phenylbutazone for 9,360 patient-days, 11 achieved a major therapeutic response, which was maintained in 9 One of 2 who obtained only minor improvement continued to be improved at the end of the study

One woman with rheumatoid arthritis had agranulocytosis after a severe upper respiratory infection after 16 months of treatment with the drug Agranulocytosis occurred in another woman with mixed arthritis who had received phenylbutazone for 28 days and acetosulfone for 21 days concurrently Both these women later were successfully treated with phenylbutazone for many months Laboratory examinations performed on 50 of the 100 patients at the end of the study gave no evidence of hematological or hepatic damage attributable to prolonged treatment with phenylbutazone The abnormalities in these laboratory determinations were those habitually found in patients with these rheumatic disorders In 90 of the 100 patients, the original favorable response was maintained Although phenylbutazone was occasionally withheld temporarily because of untoward side-effects, its administration was resumed successfully in all but 6 patients As a rule, in patients with ankylosing spondylitis a greater degree of favorable therapeutic response was achieved and afterward maintained with a smaller daily dose than those with rheumatoid arthritis, mixed arthritis, and psoriasis with arthritis

PATHOLOGY

Relationship Between Renal Function and Clinical Course in Chronic Renal Failure Based on 29 Autopsied Cases P Effersøe Acta med scandinav 156 435-448 (No 6) 1957 (In English) [Stockholm]

The relationship between the clinical course and the results of the endogenous 24-hour creatinine-clearance test, used as renal function test at a general hospital, was studied in 29 patients with chronic disease of the kidneys The patients were selected on the basis of autopsy findings without regard to the results of renal function tests made while they were still alive Patients with other diseases that might have influenced the chronic nephropathy, particularly those with cancer, were excluded Of the 29 patients, 6 between the ages of 33 and 69 years had congenital cystic disease of the kidneys and 23 between the ages of 18 and 73 had kidneys of half the normal size as determined by autopsy The 29 patients had been tested and treated at the hospital or had been followed up as outpatients for several years before their deaths Patients with severe cardiovascular signs, such as pronounced cardiac edema, pulmonary edema, encephalopathy, or apoplexy, or patients with purulent urine had a serum concentration of creatinine at the time of their deaths that was much lower than that of the patients who did not present such cardiovascular signs or did not have pus in the urine at the time of their deaths The serum concentration of creatinine also varied greatly in the patients with cardiovascular complications or pus in the urine This finding suggests that the renal function has no direct influence on the fatal issue

The patients without such cardiovascular signs and those who did not have pus in the urine showed only 1 common feature concerning the renal function in the course of their illness, namely a further impairment of the function from about 5% to about 4% of the normal as revealed by a rise in serum creatinine level from 9 to 13 mg per 100 cc to 14 to 16 mg per 100 cc within the period from 6 to 3 months before their deaths The patients will survive for from 3 to 6 months after their impairment in renal function has taken place, no matter whether the impairment progresses still further after the 4% level has been reached The patients whose renal function exceeds 5% of the normal as measured by the endogenous 24-hour creatinine clearance test (a serum creatinine level below 11 mg per 100 cc) can survive for several years, and the prognosis remains uncertain until the renal function drops below 5% This applies to patients with cystic kidneys and chronic pyelonephritis No correlation was found between the serum urea concentration at any time in the course of the disease and at the time of death

Discrimination Between Obstructive and Hepatocellular Jaundice by Means of the Commonly Used Serum Tests E Hill and L Zieve Am J Clin Path 27 6-12 (Jan) 1957 [Baltimore]

The comparative effectiveness, separately and in combination, of 5 commonly used serum tests was evaluated in an unselected, consecutively observed group of 49 patients with obstructive jaundice who were paired individually, on the basis of the degree of bilirubinemia, with a group of 49 patients with hepatocellular jaundice Nineteen additional patients were excluded from the study because 1 or more of the 5 hepatic tests to be evaluated were lacking Carcinoma was the cause of obstruction in 28, stones in the common bile duct in 14, pancreatitis in 5, stricture of the common duct in 1, and the cause was unknown in 1 patient Of the patients with hepatocellular jaundice, 24 had viral hepatitis and 25 had cirrhosis

Tests used were those generally available in the ordinary clinical laboratory cephalin-cholesterol flocculation, thymol turbidity, zinc sulfate turbidity, alkaline phosphatase expressed in King-Armstrong units, and the serum cholesterol level Cephalin-cholesterol flocculation was by far the most discriminating test The thymol turbidity test was 67% as effective, the alkaline phosphatase and zinc turbidity tests were 50% as effective, and the serum cholesterol level was 40% as effective A combination of all 5 tests was only slightly better than the cephalin-cholesterol flocculation test alone It is recommended that primary reliance be placed on the cephalin-cholesterol flocculation test and that corroborative information be sought with the alkaline phosphatase and thymol turbidity tests

Changes in the Pituitary Gland in Massive Therapy with Steroids T R Cox and W Krohn Am J Clin Path 27 24-28 (Jan) 1957 [Baltimore]

The recent innovation of treating leukemia with massive doses of steroids prompted the authors to study the pituitaries of such patients and compare them with those of patients who had received small maintenance doses of steroids The 12 patients whose pituitaries were studied had received prednisolone, hydrocortisone, corticotropin, or cortisone in large daily doses Prednisolone, for example, was given in daily doses up to 5 Gm (usually 3 Gm) Many of the patients had received total doses of over 27 Gm The pituitaries were studied in routine hematoxylin-eosin preparations and by a modified periodic acid-Schiff, orange-G, aniline blue stain for pituitary granules This stain clearly reveals the 4 types of pituitary cells acidophilic, chromophobic, periodic acid–Schiff positive, and periodic acid–Schiff negative basophilic All of the patients had had acute or chronic leukemia Examination of the hematoxylin-eosin–stained slides proved surprisingly disappointing Hydropic and hyalinizing changes were found in only a small number of the cases Varying amounts of atrophy and apparent fibrosis, particularly in the region of basophilic cell localization, were rather constant features It was not until the granule stains were studied that a pattern revealed itself The cases were broken down into 3 groups on the basis of amount of periodic acid–Schiff activity because a striking variation in the number of positive cells was noted

In the pituitaries of patients in group 1 who had received 27 Gm of steroids or more a striking increase in periodic acid–Schiff activity and diminished numbers of basophils that are periodic acid-Schiff negative were consistent features Studies now in progress show a moderate decrease in protein-bound iodine and decreased radioactive iodine uptake after massive steroid therapy Inasmuch as these cells that are periodic acid–Schiff positive are believed to be responsible for thyrotropic hormone and their number is found to be increased in the absence of the gland, one might wonder whether these large doses had directly suppressed the thyroid gland, bringing about increased thyrotropic activity in the pituitary Loss of the basophils that are periodic acid–Schiff negative, in some instances, seemed to be due to loss of specific granules from the cells and, in other instances, to an actual degenerative process The changes in groups 2 and 3 corresponded closely to the ages of the patients and to gonadal function

RADIOLOGY

Irradiation Therapy in Brain Tumors W Hellriegel Strahlentherapie 102 21-30 (No 1) 1957 (In German) [Munich, Germany]

In a series of 248 brain tumors treated by irradiation pituitary adenomas accounted for 79, glioblastomas for 71, astrocytomas for 21, and medulloblastomas for 15 Spongioblastomas, oligodendrogliomas, ependynomas, neurinomas, meningiomas, angioblastomas, craniopharyngiomas, and others were represented in smaller numbers In the treatment of brain tumors the radiologist must collaborate with the neurosurgeon, who plays the leading role About half of the pituitary tumors could be improved by irradiation With properly aimed irradiation, such as the convergence method, improvement can be achieved in 67% of the patients In the other types of brain tumors the author prefers the pendulum or oscillating type of irradiation The stationary-field type of irradiation is used only on patients with superficial tumors Commenting on the interstitial implantation of radioactive isotopes, the author says that at his clinic grains of radioactive gold are implanted Either the bed of the tumor is implanted with these radioactive grains during the operation, or the gold is implanted by the transcutaneous route after most of the tumor has been resected A tumor dose of 6,000 r gives the best survival rates, this was especially evident in the 71 patients in whom irradiation was used for glioblastoma, 5 of whom survived for 5 years or longer

Thorotrast Disease L Fruhling, C-M Gros, A Batzenschlager and M Dorner Ann med 57 297-350 (July-Aug) and 57 409-486 (Sept-Oct) 1956 (In French) [Paris]

The excellent contrasts obtainable with Thorotrast (a colloidal suspension of thorium dioxide) caused it to be widely used in radiologic practice for some 10 years after its introduction about 1930 Reports of late complications, steadily increasing in number and severity, then began to appear and it soon became clear that the entire question of using Thorotrast would have to be reviewed in the light of these late effects This the authors have attempted to do, devoting the 1st part of their study to a general consideration of the physical characteristics of Thorotrast, its history, its clinical use, and the experimental findings Part 2 deals with the microscopic identification of Thorotrast and the histopathology of the late lesions, whatever their character or location Part 3 is a report on the anatomic and clinical findings in 21 patients with late lesions due to the injection of Thorotrast for which the authors use the general term Thorotrast disease

Their findings make it clear that the introduction of Thorotrast into the body is constantly followed by late lesions, which may appear as (1) a local thorotrastoma causing only local symptoms, (2) a local thorotrastoma *accompanied by clinical signs related to a generalized* Thorotrast infiltration, (3) generalized Thorotrast infiltration with clinical manifestations but without a local thorotrastoma, (4) generalized Thorotrast infiltration discovered accidentally at autopsy, and (5) cancer associated with lesions due to Thorotrast Thorotrastomas, which develop whenever a quantity of Thorotrast is injected into the connective or celluloadipose tissue either intentionally or by accident, are inflammatory pseudotumors The injected Thorotrast, acting as a foreign body, is phagocytized by reticulum cells—histiocytes or macrophages These cells eventually undergo necrosis, setting the grains of Thorotrast free to reexert their irritating action The resulting sclerosis is intensified with each repetition of the process, and, since virtually none of the Thorotrast is ever eliminated, the lesions progress slowly but inexorably

Thorotrast, however, is not merely an inert foreign body, it is also a practically inexhaustible source of radioactivity—emitting alpha, beta, and gamma rays, and certain forms of cellular necrosis should undoubtedly be attributed to this fact The severity of the late lesions due to Thorotrast is linked to the development of diffuse sclerosis of the liver resulting in irregular cirrhosis and severe degenerative changes in the liver structure Involvement of the bone marrow is clearly evident on histological study, clinically, it is shown by moderate anemia, sometimes accompanied by platelet deficiency and mild leukopenia The indications are that Thorotrast favors the appearance of cancer, especially endothelial sarcomas of the liver and the spleen Cancers were found in association with thorotrastosis in 3 of the authors patients These findings show that the use of Thorotrast in human subjects should be absolutely forbidden

Osteogenic Sarcoma of the Skull Following Irradiation E M Skolnik, E J Fornatto and J Heydemann Ann Otol Rhin & Laryng 65 915-936 (Dec) 1956 [St Louis]

The authors present the histories of 2 patients with osteogenic sarcoma of the skull In the 1st patient, a 20-year-old man, the sarcoma developed in the temporal bone 3½ years after a postauricular keloid had been irradiated with a total of 6,050 r in air The sarcoma was resected In the 2nd patient, an 11-year-old girl, sarcoma developed in the frontal bone 10 years after the irradiation of a retinoblastoma (with radon seeds over a period of 9 months) and was inoperable Eight similar cases reported in the literature are reviewed The relatively young age of the patients, the minimum dosage of 3,000 r, the prolonged duration of irradiation treatment and a latent interval of at least 3 years are important factors in the development of osteogenic sarcomas of the skull from this cause These neoplasms are characterized by rapid growth Malignant degeneration should be suspected if a localized swelling or mass develops in a region of previous irradiation, particularly if associated with skin alterations, pain, and functional disturbances

Osteogenic sarcomas of the skull after irradiation have no specific radiologic feature The main characteristics are the presence of a soft tissue mass, bone destruction with cortical involvement, periosteal reaction and eventually complicating fractures Osteogenic sarcoma is a highly malignant neoplasm derived from cells analogous to osteoblasts Its essential feature is the formation of osteoid tissue directly by the malignant osteoblasts with no intermediate fibrous or cartilaginous matrix The presence of cartilage or giant cells does not exclude the diagnosis No definite histological characteristic could be demonstrated in the osteogenic sarcomas of the skull after irradiation Wide surgical resection appears to be the treatment of choice, but no definite conclusion is possible at present Prolonged irradiation of benign lesions should be avoided

PHYSIOLOGY

Investigations on Effect of Prethcamide (Micoren) on the Physiology of Respiration A Buhlmann and H Behn Schweiz med Wchnschr 87 135-137 (Feb 9) 1957 (In German) [Basel, Switzerland]

The authors emphasize the need for effective analeptics in the treatment of intoxications in which respiration is impaired They describe investigations on the new analeptic prethcamide (Micoren), a mixture of two alkylimino fatty acids, crotethamide and copropamide (see THE JOURNAL 155 363 [May 22] 1954) They tested its effect in 3 persons with practically normal arterial carbon dioxide tension, in 1 person with slightly increased tension, and in 11 patients with chronic respiratory acidosis resulting from obstructive emphysema in chronic asthmatic bronchitis or chronic bronchial asthma In a 12th patient the chronic alveolar hypoventilation was a sequela of severe obesity These 12 patients had a mild to moderate respiratory insufficiency with hypoxemia and hypercapnia They were selected because the irritability or activity of their respiratory center was higher than normal and in the hope that prethcamide would help them All subjects received by slow intravenous injection 3 cc of a 15% solution (450 mg) of prethcamide With the aid of a self-retaining cannula, arterial blood was obtained anaerobically before and 5, 10, and 15 minutes after the injection The blood was analyzed with regard to oxygen capacity, oxygen saturation, carbon dioxide content, and pH The carbon dioxide tension was computed on the basis of the carbon dioxide content of the plasma and the pH In order to obtain information about the respiratory mechanism and the ventilation, the esophageal pressure reading, the pneumotachogram, and the electroencephalogram were taken simultaneously with the withdrawal of the blood specimens

Prethcamide produced a decisive increase in the total ventilation and a noticeable increase in the alveolar ventilation, with corresponding improvement in the arterial carbon dioxide tension In the presence of pulmonary hypertension resulting from alveolar hypoventilation, a decrease in pressure, which corresponded to the improvement in the alveolar gas pressure resulted under the influence of prethcamide Otherwise, however, the drug had no significant circulatory effect, at least not with the dosage and mode of administration used Prethcamide had only slight secondary effects but it was a very effective respiratory stimulant and analeptic Its use is indicated particularly in patients with central respiratory disturbances such as in those resulting from poisoning with soporifics or morphine and in asphyxia of the new-born A reduction in the arterial carbon dioxide tension can be achieved in chronic respiratory acidosis resulting from obstructive emphysema Observations on the respiratory mechanism suggest that the drug is suitable for prolonged treatment only in combination with bron-

PUBLIC HEALTH

Effect of Food Preferences on Nutrient Intake C M Young and T D Lafortune J Am Dietet A 33 98-103 (Feb) 1957 [Chicago]

Dislike for certain foods becomes important, if it seriously interferes with the adequacy of a person's intake of food Such interference would occur only in those with many dislikes and particularly with dislike of certain key foods Excessive food dislikes frequently are associated with neurotic tendencies or with immaturity Women, particularly adolescent girls, are shown to have more food dislikes than men, and they are recognized to be 1 of the least well-fed groups in the population A study of the relationship between food dislikes and other factors leading to food rejection was made in a group of Cornell University freshmen women They were studied early in their freshman year while food preference still was under home influence, 145 were chosen at random and sent questionnaires Ninety responded and 81 completed all the necessary entries The ages of the girls were from 16 to 20, their heights from 60 to 70 in , and their weights from 100 to 169 lb About 54 came from small communities, the others from large urban areas The girls were asked to keep a record of all food and drink, except water, taken for 1 week Time and place should also be listed The menus served and the size of servings of the various foods were furnished by the dietitians

Fifty-two of the 185 food items (28%) included in the check list were not disliked by any of the girls Thirty-two of the 81 girls had dietary intakes below 70% of the recommended dietary allowances for 16-to-20-year-old girls in one or more nutrients Calcium, iron, and thiamine appeared to be the area of greatest weakness in nutrient intake 23 of the girls had calcium intakes below the 70% level, 21 had iron and 12 thiamine intakes below this level In general, religious food restriction did not influence the adequacy of the diet Health and caloric restrictions had an influence on 24 of the girls who were dieting to lose or gain weight Milk, eggs, bread and cereals were not used in the available quantities, yet the girls did not list them as disliked foods The authors explanation for these less-than-desirable food intakes is the indifference of the girls to certain of the available foods That eggs were an intensely disliked item on the check list is peculiar It is clear, however, from the responses to the oral questioning, that the real cause is definite individual preference with regard to the preparation, not a dislike of eggs

Food dislikes seemed to have little influence on the adequacy of the diet, because the most intensely disliked foods were listed among the 'seldom-served' or 'never-tasted' items The solution of the less-than-desirable nutrient intakes at least in this group would seem to be an educational program aimed not at combating food dislikes but rather at emphasizing the importance of certain foods, which appear as optional items on the menu This type of study should be extended to other population groups

INDUSTRIAL MEDICINE

The Danger of Dermatoses Due to Cold Setting Ethoxyline Resins (Epoxide Resins) E Grandjean Brit J Indust Med 14 1-4 (Jan) 1957 [London]

The ethoxyline and epoxide resins are used as adhesives and casting resins in the manufacture of various kinds of apparatus, electrical equipment, automobiles, and aircraft They are usually supplied in the form of 2 reactive components, resin and hardener The introduction of ethoxyline resins (under the trade marks of 'epon" or "araldite") into manufacturing plants where workers had been hitherto unfamiliar with chemical processes brought the workers into contact with substances that carried an unknown risk to the skin The case histories and patch tests showed that the skin reactions follow contact with the liquid stage of the resin and hardener or with mixtures of these before setting is complete This applies both to the apparent direct irritation and sensitization A mean time of setting is about 48 hours, before which time contact with the material should be prevented The set, hardened resin appears to be innocuous as far as skin reactions are concerned The vapor pressures of the casting resin and of the hardener are so low that atmospheric concentrations are negligible in respect to the early and sensitization effects While the direct contact of the liquid materials with the skin seems to be the chief problem, there is a possibility that even the low concentrations of resin or hardener vapors may be sufficient to induce a recurrence in a sensitized subject

Workers should be trained by experienced men how to use these resins and should be told that traces of the casting resin on tables, chairs, shoes, clothes, machines, buttons, door handles, pencils, etc , may be the source of skin inflammations The work bench should be covered by a strong paper on to which the casting resin may drip to prevent permanent contamination The soiled paper could be removed twice daily and destroyed Fresh cleaning rags should be supplied daily and used only for occasional cleansing of apparatus, machines, and containers Contaminated rags should be handled with gloves The use of solvents for removing spots of resin on the skin or nails should be abandoned When apparatus is cleaned with solvents, the worker should wear gloves of polythene Ketonic solvents are preferable The well known objection to gloves in work of this kind can to some extent be overcome by the use of soft leather gloves with knitted backs or, alternatively, thin cotton gloves under polythene Barrier creams have their place in protecting the skin in this work, especially the face It is desirable to install facilities for washing in the working room Finger nails should be kept short and clean After the day's work washing should be followed by inunction of the hands with a mild fatty ointment Preemployment medical examination should eliminate persons with allergies from work in these processes If the initial stage of skin irritation develops, an attempt can be made to prevent sensitization, but, if it does result, there must be no further work with the resin

BOOK REVIEWS

Practical Diagnosis and Treatment of Liver Disease By Carroll Moton Leevy, M D, Director of Clinical Investigation Director of Outpatient Department, and Attending Physician, Jersey City Medical Center, Jersey City, N J Foreword by Franklin M Hanger, M D, Professor of Medicine, College of Physicians and Surgeons, Columbia University, New York Cloth $8 50 Pp 336, with 84 illustrations by Felix Traugott Paul B Hoeber, Inc (medical book department of Harper & Brothers), 49 E 33rd St, New York 16 1957

This is a practical and relatively condensed book on liver disease written for the clinician A composite approach to diagnosis and treatment with correlation of clinical and laboratory findings is stressed The first five chapters deal with the diagnostic significance of the various clinical and laboratory findings Chapter 6 is concerned with general principles of therapy Treatment of fluid retention, electrolyte disturbances, coma, and hematemesis is included There is a brief discussion of the surgical procedures available for the latter The tone of this chapter is practical, and there are convenient tables and diet lists The final chapters deal with liver disease due to nutritional deficiencies and metabolic disturbances, toxipathic liver disease, circulatory disturbance, biliary obstruction and infection, neoplastic disease of the liver, and trauma The presentation is clear, concise, and readable The bibliography is selected but adequate for the purpose of the book Theoretical discussion is minimal The print is unusually clear, as are the diagrams and tables The color plates are excellent This book is recommended for the practitioner who needs a concise clear guide to the management of the more common problems encountered in patients with liver disease

The American Academy of Orthopaedic Surgeons Instructional Course Lectures Volume XIII Editor R Beverly Raney M D Cloth $12 Pp 327, with illustrations J W Edwards Ann Arbor, Mich, 1956

The American Academy of Orthopaedic Surgeons, at its annual meetings during the past 15 years, has offered instructional course lectures that supplement the papers and discussions given in the scientific sessions The subjects for these lectures are carefully chosen and include many of the fundamental concepts and basic techniques used in the practice of orthopedics These are generally presented by authors who themselves have devised the techniques or have made special studies and contributions to the subject under discussion Thus, at each meeting an opportunity is provided for each member or guest of the academy to select a group of lectures on subjects of interest to him or about which he wishes to refresh or supplement his knowledge Through the years these lectures have been so popular that they have been published in book form These annual volumes constitute a valuable reference library for practicing surgeons, residents, and students Volume 13 contains 27 articles with appropriate illustrations Among these are four on the hip, one on the spine, eight on neuromuscular diseases, three on diseases of bone, and three on traumatic lesions In addition, there are articles on more general topics, such as anatomy and physiology of the bone and joints, bone tumors, vascular lesions, disability evaluation, medical writing, and medical education

The Recurrent Laryngeal Nerves in Thyroid Surgery By William H Rustad M D Assistant Clinical Professor of Surgery University of California School of Medicine, San Francisco Cloth $4 50 Pp 47 with illustrations by Ralph Sweet Charles C Thomas Publisher 301-327 E Lawrence Ave, Springfield, Ill, Blackwell Scientific Publications, Ltd 24-25 Broad St, Oxford England, Ryerson Press 299 Queen St W Toronto 2B Canada 1956

This monograph is a study of the extralaryngeal portions of the recurrent laryngeal nerves on the right and left sides of the neck Although 250 nerves were dissected in 125 cadavers, it was thought best to report on the 100 specimens that remained intact on complete exposure Such painstaking dissection in an area where variations are the rule is commendable Equally praiseworthy are the clear and accurate illustrations Much worthwhile material has been presented Of the 200 nerves dissected, 57% were found to be single trunk nerves while the rest were divided Bilateral division occurred in 24% of the specimens This nerve may branch at any point peripheral to its separation from the vagus nerve The point at which this nerve is most vulnerable during a thyroidectomy is on the posterolateral surface of the thyroid gland at the level of the junction between the middle and lower thirds Here the main branches of the inferior artery usually enter the gland An interesting section on historical background and grouping of the patterns and a bibliography are included This book can be highly recommended to surgeons and anatomists

Morals in Medicine By Thomas J O Donnell S J, Regent and Professor of Medical Ethics Georgetown University School of Medicine Georgetown University Hospital Washington D C Cloth $3 75 Pp 281 Newman Press, Westminster Md 1956

The author correctly defines ethics as ‘an investigation into the goodness or evil of human actions in the light of natural reason’ He has sought to extract from ethics, moral theology, and canon law the principles of each as he thinks they should apply to the actions of members of the medical profession If the triad of disciplines on which this book rests is accepted by the reader as proper and germane, then there can be no disagreement with the author on the score of the treatment of the subject as he has outlined it Very probably he is a skilled theologian and a man learned in canon law, but the application of principles of moral theology and canon law to ethical principles, as such principles apply to the practice of medicine, is a proposition that must be accepted or rejected by the individual physician, exactly as he must accept or reject the principles of deism in his own life

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated

The eight chapters which comprise this book contain much that is both provocative and enlightening In the third chapter, on the inviolability of human life, the definition of the fundamental equality of all men in the words "they all have the same final destiny or end in life, and are all equal in their intrinsic dignity as human beings" seems especially commendable Such perplexing subjects as euthanasia, suicide, prolongation of life in the face of a terminal illness, mutilation, contraception, needless surgery, ghost surgery, prefrontal lobotomy, experimentation on human beings, professional secrecy, abortion, problems of marriage, and many others are treated in a resolute manner by the author according to the system mentioned The book will be instructive to the physician who seeks a guide to his own professional conduct based on theology and morals as they affect ethics The work does not inquire extensively into ethical problems encountered among physicians in their relations with one another, as opposed to ethical problems arising between physician and patient, but it was not intended as a commentary on the former category

The Clinical Management of Varicose Veins By David Woolfolk Barrow, M D, Professor of Surgery Marquette University School of Medicine, Milwaukee With foreword by Arthur W Allen, M D Second edition Cloth $6 Pp 169, with 74 illustrations Paul B Hoeber Inc (medical book department of Harper & Brothers), 49 E 33rd St, New York 16 1957

This is the second edition of a highly successful, concise, and clearly written monograph, eminently suitable for the general surgeon and also the general practitioner doing his own surgery Perhaps the most attractive feature of the book is the detached, unbiased attitude of the author toward accomplishing the objectives of treatment While he describes his own experience precisely, he calls attention to controversial points The author's enthusiasm for femoral vein ligation for postphlebetic sequelae is not shared by this reviewer The style is simple and direct, the illustrations are many, and the printing is excellent

Clinical Physiology The Functional Pathology of Disease Edited by Arthur Grollman, M D, Ph D F A C P, Professor and Chairman of Department of Experimental Medicine, University of Texas Southwestern Medical School Dallas Cloth $12 50 Pp 854, with illustrations Blakiston Division, McGraw-Hill Book Company, Inc, 330 W 42nd St New York 36, 95 Farringdon St London, E C 4, England, 253 Spadina Rd, Toronto 4 Canada 1957

This book, the work of 26 contributors, attempts to present basic physiological principles in relationship to clinical medicine In general this has been accomplished exceedingly well, largely because the editor has chosen clinicians whose research has been in the field of human physiology Among these are the recent Nobel prize winners, Cournand and Richards, who have done a superb job with the section on the respiratory system Chapters on carbohydrate, lipid, and protein metabolism were completed by Dr John P Peters just before his untimely death The cardiovascular, digestive, endocrine, renal excretory, hematopoietic, and locomotor systems are all covered in this book There is also a chapter on infection and immunity References are given at the end of each chapter A few diagrams and tables supplement the text in appropriate places This is an excellent book for the internist and the hospital resident who would like to correlate physiological concepts with what is found in the diseased patient

Radiology of the Alimentary Tract in Infancy By Roy Astley, M B, M R C S, D M R, Radiologist, Children's Hospital Birmingham, England Cloth $10 Pp 287, with illustrations Edward Arnold & Co, 41-43 Maddox St, London, W 1, England, Williams & Wilkins Company, Mount Royal and Guilford Aves, Baltimore 2, 1956

By combining roentgenograms, schematic drawings, and terse case summaries with observations and comments based on broad clinical experience, the author has realized his stated aim to produce a volume primarily for radiologist and radiologist trainee and useful to both pediatrician and pediatric surgeon A great deal of highly pertinent material which deals with the radiologic aspects of gastrointestinal situations solely or primarily encountered in infancy is presented This is arranged in seven anatomic subdivisions Commendable brevity has been achieved, with no sacrifice of important content material and no compromise with clarity of discussion The various developmental faults responsible for sometimes fatal and often obscure alimentary difficulties are particularly well presented and documented By the avoidance of repetitive discourses on subjects that are not peculiar to infants, the pediatric keynote has been preserved throughout each subdivision The outstanding excellence of literary content is matched by similar stellar performance by the publishers Reproduced roentgenograms, always critically examined by radiologists, are of fine quality This book merits attentive reading by radiologists and pediatricians and an honored place on the reference shelf

The Gist of Obstetrics By H B Atlee M D F R C S F I C S, Head of Department of Obstetrics and Gynecology Dalhousie University, Halifax, N S, Canada Cloth $6 Pp 327, with 88 illustrations by Garth Vaughan, M D, C M Charles C Thomas, Publisher, 301-327 E Lawrence Ave Springfield, Ill, Blackwell Scientific Publications, 24 25 Broad St, Oxford, England, Ryerson Press, 299 Queen St, W, Toronto 2B, Canada, 1957

This book is based on lectures given by the author to his students It therefore contains data based chiefly on his personal experience It is not intended as a reference book in the manner of the larger standard textbooks on obstetrics The author is partial to natural childbirth and is opposed to the widespread prophylactic use of forceps He does, however, consider forceps on the after-coming head in breech deliveries the method of choice In general, the advice given is in accord with that practiced in the United States and Canada The illustrations are simple line drawings, but they are clear and instructive There are no references, but this is because the book is a personal one. The author has a keen sense of humor which is evident throughout the book This type of teaching is undoubtedly of great help to students, hence this book should be most valuable to medical students if used in conjunction with the standard textbooks of obstetrics

QUERIES AND MINOR NOTES

PROPHYLAXIS OF AMEBIASIS

TO THE EDITOR —*What is the value of the prophylactic treatment of amebiasis with antiamebic drugs? A number of persons return from Mexico with severe amebic dysentery in spite of hygienic precautions This dysentery frequently proves refractory to treatment with all the modern amebicides The statement has been made that prophylactic treatment with antiamebic drugs is not indicated because it may simply "mask' the infection or cause the amebas to become 'drug-fast' What is the rationale of allowing individuals to acquire a full-blown or possibly a fulminating infection if prophylaxis is possible? Have any studies been made as to the value of chemical pro phylaxis in amebiasis? Please outline in detail a suitable regimen for the prophylactic treatment of amebiasis Which drug would be most effective? What would be the daily dosage, and for what period of time should the drug be taken? Would a combination of drugs, taken either simultaneously or in succession, be more effective?*

M D, New York

This inquiry has been referred to four consultants, whose respective replies follow —ED

ANSWER —Craig first suggested the use of amebicidal drugs prophylactically in the prevention of amebiasis (*Am J Trop Med* 20 799, 1940) He proposed Diodoquin (5,7-diiodo-8-quinolinol) for this purpose and believed that, if administered in therapeutic amounts daily, the drug would probably destroy any amebas that might be ingested However, this schedule was not supported by any clinical investigation

Recently Beaver and others (*Am J Trop Med* 5 1015, 1956) have demonstrated the chemoprophylactic properties of Diodoquin when administered to volunteers who were experimentally fed cysts of Endamoeba histolytica on several occasions at weekly intervals They found that the daily administration of 650 mg of Diodoquin, begun one week before the first feeding of cysts and continued for one week after the last feeding, completely protected all of nine volunteers against infection Similar experiments with glycobiarsol (Milibis) demonstrated that this drug, in daily doses of 250 mg, protected 8 subjects against infection, although there was one apparent failure among 14 subjects in additional trials in which the number of cysts was twice that given the initial 8 subjects It is probable that either drug would furnish effective suppression under circumstances that might provide casual or intermittent exposure to small numbers of cysts of E histolytica The drugs could be taken for a period of at least one month in the doses used in the above trials

ANSWER —There have been several demonstrations of so called chemotherapeutic prophylaxis of amebiasis in mental institutions and one in a hyperendemic area in Central America Mass treatment of groups having a high prevalence of infection has reduced prevalence practically to zero, the continuance of the chemotherapy for weeks or months has prevented reinfection from infected contacts There are no known reports of studies of chemoprophylaxis in uninfected individuals going to hyperendemic areas If chemoprophylaxis is desired, it can probably be accomplished by taking iodochlorhydroxyquin (Entero-Vioform), 0 25 Gm twice daily, or Milibis, 0 5 Gm three times daily twice a week, for the duration of exposure but not longer than a month There is no advantage in taking a combination of drugs simultaneously, but they might be taken in succession However, it is believed that it is preferable to avoid salads and unsafe water and to treat gastrointestinal symptoms as soon as they occur Bacillary infections seem much commoner than amebic and can be quickly combatted by therapeutic doses of Entero-Vioform or a sulfonamide There does not seem to be any evidence that E histolytica becomes drug-fast, but it is recognized that some patients require a change of treatment in order to obtain a cure Early cases of amebic dysentery rarely are refractory to chemotherapy with the modern amebicides Persons with refractory cases should be examined carefully by an expert technician to determine whether there is some other etiological agent

ANSWER —In general, for prophylaxis, tourists or travelers take one Entero-Vioform tablet in the morning and one at night This dosage schedule, in the great majority of instances, is adequate to prevent diarrhea and has the added advantage that the traveler need not carry pills around all day long However, some travelers do take 1 tablet with each of the three daily meals No sufficiently critical study has been done that could supply a definite dosage schedule Dr McPhee, from Princeton, had good luck with our athletes at the Pan-American games with 2 Entero-Vioform tablets daily

If diarrhea develops, the dose should be increased in proportion to the severity of the diarrhea Since Entero-Vioform is practically nontoxic, one does not have to worry about side-effects From 4 to 6 tablets daily will usually clear up such nonspecific diarrhea in a matter of a day or two, and then, when the symptoms have disappeared, the prophylactic dose can be resumed The use of Entero-Vioform has been mentioned by Hughes (*J A M A* 150 1456-1459 [Dec 13] 1952) and by Bercovitz (*Bull New York Acad Med* 24 51, 1948)

The answers here published have been prepared by competent authorities They do not however, represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer s name and address but these will be omitted on request

ANSWER —Entero-Vioform is of special value in treatment of amebiasis and is believed by many laymen outside the United States to be of value also against the bacillary dysenteries Therefore, on the basis of these assumptions, suppressive doses of 0 4 Gm given orally twice daily might be effective in endemic areas However, the usual precautions of avoiding contaminated food should be maintained The sulfonamides have been recommended also, but, like the tetracyclines, their daily use by laymen, without medical supervision, may sensitize or cause untoward effects in a fair number of susceptible individuals

ALCOHOLISM AS A MEDICAL ILLNESS

To THE EDITOR —*I have read much on the acceptance of alcoholism as a disease but have always felt that this is a moral or social problem rather than a medical one I also feel that cirrhosis of the liver and psychosis would more likely have nutritional deficiency bases Could you tell me what the grounds are for considering alcoholism as a medical illness?*

M D , New York

ANSWER —A disease is defined as follows In general, any deviation from a state of health, an illness or sickness, more specifically, a definite marked process having a characteristic train of symptoms It may affect the whole body or any of its parts, and its etiology, pathology, and prognosis may be known or unknown

A disease can also be classified according as to whether it is of primary or secondary origin All patients suffering from the disease process known as alcoholism are also known as problem drinkers The term 'problem drinker" has more of a moral and social implication and exemplifies that type of reasoning However, alcoholism does denote a condition in which there is a deviation from a state of health Alcoholism can be classified into (1) primary alcoholism, which includes (*a*) those patients who from the very first drink of an alcoholic beverage are unable to control their desire for it and (*b*) those who through use over a great many years have developed an inability to take a drink or leave it alone and have become like group (*a*), and (2) secondary alcoholism, which includes those who use alcohol for its sedative action as a means of escape from reality and, in particular, from their personal problems, which are usually on a psychosomatic basis This secondary group comprises by far the majority of patients suffering from alcoholism, however, most alcoholic patients prefer to be in the primary group

Regardless of which group an individual belongs to when under the influence of alcohol, he is ill The member of the primary group is not ill between episodes of drinking, but neither is an allergic person, unless exposed to the allergy This does not necessarily imply that primary alcoholism is an allergy, it may be more akin to the excitement that certain drugs may produce (such as barbiturates and morphine) in some patients, since the action of alcohol is similar to sedatives and volatile anesthetics, such as ether

However, the controversy as to whether alcoholism is or is not a disease is related to the voluntary aspects of the condition in a manner similar to narcotic addictions Anyone can become addicted to narcotics or alcohol if he uses enough each day and for a long enough period Both addictions are characterized by withdrawal symptoms, and the withdrawal symptoms can be prevented in both cases by substitute sedative therapy

In chronic narcotic use, it has been shown (*Science* 124 263 [Aug 10] 1956) that continuous use of narcotic drugs inactivates the demethylating enzymes, although no similar mechanism has been shown for alcohol, some such altered physiological state might exist

Simply because there is a moral and social aspect to this disease does not give physicians the right to deny its existence as a disease, any more than they would be able to deny the existence of venereal disease, which is usually quite obvious As to whether alcoholism is a moral or social problem, rather than a medical one, all that can be said is that that is purely a matter of opinion and feeling, and undoubtedly both approaches are of value The complications of alcoholism are undoubtedly nutritional, since the withdrawal syndrome (delirium tremens) can occur even if the diet and vitamin intake is more than adequate

MUSCULAR DYSTROPHY AND HEREDITY

To THE EDITOR —*A 35-year-old man, height 5 ft 10 in (178 cm), weight 115 lb (52 1 kg), has muscular dystrophy that began when he was 16 years old The process started in his shoulder muscles and now involves almost the entire musculature of his body, except for the forearm muscles He is still able to walk and works sitting at a bench He suffers no pain in particular and seems to have a good attitude toward his disease He has a daughter 10 years of age who at present has no signs of muscular dystrophy, but he is wondering whether she will be a victim of it, inasmuch as his mother, who is now bed-ridden, his uncle on his mother's side, and a brother, who is now confined to a wheel chair, all have muscular dystrophy What can be done for him by a general practitioner?*

J W Wentz, M D , Pataskala, Ohio

ANSWER —This patient undoubtedly has muscular dystrophy On the basis of the fact, however, that onset was in adolescence and that many members of the family of both sexes are affected, as well as on the basis of the distribution of the atrophy, this would seem to be the type that first involves the limb girdles The mode of inheritance of this type is not known quite as well as that of the pseudohypertrophic variety, which is a sex-linked recessive, and of the facioscapulohumeral type, which is usually dominant Consequently, it is rather difficult to state whether the daughter will develop the difficulty or not, but, because of the high incidence in the family and the relatively late onset, there is certainly a possibility that she may There are no suggestions regarding therapy other than general supportive measures and possibly physiotherapy to prevent the development of contractures Mechanical aids should be used if indicated

RECURRENT THROMBOPHLEBITIS

To the Editor —*A 55-year-old man sustained a displaced fracture of both bones of the left forearm On the day of injury, an open reduction and internal fixation with bone grafts obtained from the anterior iliac spine of the patient was performed The arm was placed in a cast, and the patient did well for approximately 12 days postoperatively He had been discharged from the hospital and was at home walking around when he was seized with a severe pain in the right side of his chest, accompanied by a slight elevation in temperature He was admitted to the hospital, and x-rays were taken that revealed a wedged-shape infarct in the right lower lobe, which in the opinion of the consultants represented a probable pulmonary embolus Dicumarol therapy was started, with complete relief of pain in the chest At no time has the patient ever had any peripheral signs of thrombophlebitis, either in his legs or in his arms He never complained of any calf pain, nor was there ever any calf tenderness Dicumarol therapy was continued for 14 days, and two days after it was discontinued the prothrombin time had become elevated The patient had another episode of pain in the left side of his chest, and again x-rays revealed a pulmonary infarct in the base of the left lower lobe He was again treated with dicumarol, this time for a period of seven weeks and again at no time was there ever any sign of peripheral thrombophlebitis It was assumed that the patient had thrombophlebitis of the pelvic veins The patient also never had any unusual pain or swelling in his left upper extremity, and, as a matter of fact, 12 weeks after the original operation, he has had union of the fractures and has complete motion in his forearm as regards supination and pronation The question has arisen whether this patient will have any permanent disability as a result of the thrombophlebitis of the pelvic veins How much disability is this man expected to have because of the thrombophlebitis, and what is the opinion as regards recurrence of the thrombophlebitis if he has another serious illness or major surgery?*

Robert T Strang, M D , Kingsport, Tenn

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —On the basis of what has been presented the source of the pulmonary emboli is a matter of conjecture only The emboli most likely arose from the veins in the affected arm Since there is no good evidence that the patient ever had pelvic thrombophlebitis, it seems doubtful that he will ever have any permanent disability Yet, if the patient ever undergoes a major operation or has a serious illness, the chances are good that he will be more susceptible to thromboembolic complications than one who has not had the episodes reported, and he should, therefore, be given anticoagulants, provided there is no contraindication to their use

Answer —The absence of signs of peripheral thrombophlebitis does not rule out the possibility that clots were present in the iliac veins This could have been the source of the pulmonary emboli There would have been more symptoms with a pelvic phlebitis than with a quiet type of iliac vein clot If the pulmonary emboli are the result of bland clots in an iliac vein, then there will probably be no disability, since there are no symptoms to begin with in the extremities of this patient Also, the entire clot may have traveled to the lungs Although one cannot predict whether thrombophlebitis will or will not occur in an individual who has had one episode, should he have another serious illness or major surgery he would have to be watched closely and, if there is a slight rise in temperature, he should be placed on anticoagulant therapy In addition during any such serious illness his legs should be elevated and exercised as often as possible to keep the blood moving The legs should be examined daily during such a period

GLYCOSURIA DURING FEBRILE ILLNESS

To the Editor —*A 6-year-old girl, weight 50 lb (22 7 kg), had been having an intermittent fever, etiology unknown, for two weeks One day after the fever disappeared a urine specimen showed 2% sugar and was strongly positive for acetone Three days later a glucose-tolerance test was reported as follows fasting 134, one-half hour after administration of 50 Gm of glucose, 198, one hour later, 157, two hours, 128, and three hours, 138 mg per 100 cc All urine specimens were normal All blood sugar tests were microscopic Two years ago, during an upper respiratory infection, two urine specimens also showed a trace of sugar The child is active and has developed normally in every respect Should a diagnosis of diabetes be entertained here?*

Louis E Itzkowitz, M D Brooklyn, N Y

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —Transitory glycosuria occurs not infrequently among children during infections, and acetonuria likewise occurs frequently among normal (nondiabetic) children after fasting or inadequate food intake In the absence of other symptoms it is unlikely that the child described has diabetes mellitus, but the possibility should indeed be borne in mind In such a case it would be wise to have occasional tests of the urine for sugar after generous carbohydrate meals especially during colds or other acute illness

Answer —The fact that the child had two urine specimens that showed a trace of sugar (or reducing substance) during an upper respiratory infection probably means nothing important, as many children have some reducing substance in their urine during acute febrile illness The 2% sugar and strongly positive acetone found in the urine the day after the two weeks of fever is peculiar The child may well have eaten poorly, and the acetone could easily be explained by loss of glycogen reserves caused by fever and poor appetite A 2% sugar level, however, is difficult to explain, as this finding probably means that the child had as strong a sugar test as is possible to obtain by qualitative methods, and she should not have had any sugar in her urine at this time It is presumed that the glucose-tolerance test was an oral one and that the blood sugar tests were run by a method which measures total reducing substance rather than true blood sugar The amount of glucose given is about 10 Gm greater than is usually employed on children of this weight The shape of the curve is, however, not abnormal, but the values are all high If they are correct it is surprising that no sugar was found in the urine when the value reached 198 mg per 100 cc If the child has diabetes, it would be very strange that, three days after having much sugar and acetone in the urine, both should have disappeared and the shape of the tolerance curve should be normal rather than the prolonged high curve found in diabetes While it is not thought that the child has diabetes, it is wondered if the blood sugar values are correct, and not all read higher than they really were If there is diabetes in the child's family, it might be well to repeat the tolerance curve at a later date, perhaps using a different laboratory, otherwise, these peculiar laboratory findings can be disregarded

HARMFUL EFFECTS OF DAILY ENEMA

To the Editor —*Is there any possibility of harm from using the Fleet Enema daily? A patient began using it about two years ago and has found it indispensable*

F Paul Ansbro, M D , Brooklyn, N Y

Answer —There are no known clinical or experimental observations that would enable one to answer this question definitely This consultant believes that no harm will result if the enema is used on a short-term basis, e g , for several days, however, even under this condition there should be endoscopic control Potential harm could result from long-term use because (1) it is unphysiological, (2) there could possibly be trauma to the anal canal incident to the daily insertion of the hard plastic tip (this consultant has observed such trauma a number of times after single insertions), (3) the passage of the excessive amounts of mucus produced by this concentrated salt solution might have an adverse psychological effect, and (4) frequent manipulation by the patient of the anal region, which is an erogenous zone, is inadvisable Use of this concentrated salt enema should also be avoided by patients who require stringent salt restriction

EFFECT OF RADIOACTIVE IODINE ON PARATHYROIDS

To the Editor —*Can 'atomic cocktail therapy for hyperthyroidism affect the parathyroid glands in such a way as to cause hypoparathyroidism? This condition seems to have occurred in a patient who also has myxedema*

J K Fancher, M D , Atlanta, Ga

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —At a recent conference sponsored by the Atomic Energy Commission, the 10-year experience with radioactive iodine (I^{131}) therapy for hyperthyroidism and thyroid cancer was reviewed A com bined series of approximately 13,000 patients treate in a number of clinics was available for analysis N instance of hypoparathyroidism was reported afte treatment Beta rays, released by disintegration of I^{13} are absorbed within 2 to 3 mm of tissue Since thes provide most of the radiation effect from I^{131}, it i theoretically unlikely that normal parathyroids woul be exposed to serious injury Injury would be hypo thetically possible, however, if the parathyroids wer anomalously placed and buried in hyperfunctionin thyroid parenchyma Injury to normal parathyroi has not been reported after external radiation therap even with dosages directed against cancer in neig boring structures However, Jacox has reported a increased sensitivity of hyperfunctioning parathyroi to the effect of radiation It is thus conceivable th a patient with subclinical hyperparathyroidism, give radiation therapy for hyperthyroidism, might suffe parathyroid injury The number of patients treate with I^{131} is now sizable, so that, according to th laws of chance, spontaneous idiopathic hypoparathy roidism might be expected to occur in a few patien receiving I^{131} therapy

Answer —Large numbers of patients have now re ceived I^{131} in therapeutic doses, many of them ver large doses designed to destroy the thyroid gland or t treat cancer of the thyroid, but up to the present ther is only one known report in the literature of temporar parathyroid insufficiency following I^{131} therap (Tighe *J Clin Endocrinol* 12 1220, 1952) A wel documented case should be considered for reporting i the literature

CAFFEINE AND ULCERS

To the Editor —*The 1955 edition of Goodman an Gilman's 'Pharmacological Basis of Therapeutics (ed 2, New York, the Macmillan Company) indicate that caffeine, even more than alcohol, in its stimul tion of gastric acid production, distinguishes be tween ulcer victims and normal persons The stimu lation of the stomach by alcohol is a direct effe and does not depend on the mediation of the nervo system What is supposed to be the mechanism the stimulation by caffeine? Since, according Goodman and Gilman, amphetamine does not stim ulate production of gastric acid, presumably nervo connections, if involved, do not depend on stimul tion of the cerebral cortex Is an intact vagus nerv necessary for the stimulation by caffeine? Will par sympathetic inhibitors, such as atropine or Banthin destroy the effect of caffeine? Patients taking Ban thine, for instance, often ask if they may be pe mitted alcohol or coffee*

Alfred B Mason, M D , Concord, Calif

Answer —The exact mechanism of stimulation b caffeine of gastric acid secretion is unknown It doe not result from a central nervous stimulant effect caffeine, and the vagus nerve need not be intac whether intramural ganglions are necessary has no been determined Available evidence suggests th caffeine directly stimulates the parietal cells It al enhances the gastric secretory response to alcohol, histamine, acetylcholine and its congeners, meat extractives, and electrical stimulation of the vagus The enhancement of the vagal effect is most likely explained by the fact that acetylcholine is released peripherally when the vagus is stimulated Parasympathetic blocking agents, such as atropine and synthetic substitutes for atropine, moderately reduce but do not abolish the stimulation by caffeine of gastric acid secretion This is also true for the stimulation by alcohol and histamine

LIPOTROPIC DRUGS

To the Editor —*A number of medical products for use in geriatric practice contain inositol, choline, and methionine Has the therapeutic value of these substances been established?* *M D , Florida*

Answer —Inositol, choline, and methionine were introduced and used for the purpose of reducing heightened blood cholesterol levels They have some effect but little therapeutic value, and their use has markedly decreased A panel of nutritionists and clinical and laboratory specialists, at a recent meeting of the American Geriatrics Society, were unanimous in the opinion that these drugs give no service in prevention or therapy

Answer —Although a relatively large number of published experimental and clinical studies have hinted at the possibility of modifying arteriosclerotic changes in humans by the administration of lipotropic agents and other drugs, there seems to be no conclusive evidence establishing the therapeutic value of these preparations for this purpose The report of Moses (*J A M A* 156 492-493 [Oct 2] 1954) points out that there is no acceptable evidence in either man or animals that atherosclerotic lesions can be retarded or reversed by the administration of either one or several lipotropic agents in combination, and there is considerable evidence that the administration of large amounts of these dietary supplements to patients with moderate degrees of hepatic damage may be detrimental A reply to a query in The Journal for Feb 12, 1955, page 625, expresses the opinion that, despite some reports, the evidence of a definitely favorable effect of lipotropic agents in retarding the progression of atherosclerosis is inconclusive

POTENCY OF ASCORBIC ACID AFTER STORAGE

To the Editor —*If orange or grapefruit juice is strained from the natural fruit and placed in a pitcher or glass, will it keep for a period of from one to three days in the refrigerator without any decrease in the content or potency of ascorbic acid (vitamin C)?*

Harris P Dawson, M D , Montgomery, Ala

Answer —The amount of ascorbic acid lost from fresh orange juice that is stored for 24 hours in a covered glass or china container in a refrigerator is negligible Moore and associates, cited by Sweetman and MacKellar in Food Selection and Preparation' (ed 4, New York, John Wiley & Sons, Inc , 1954), reported in 1945 that, even when orange juice is kept uncovered in a refrigerator for as long as a week or at room temperature for three days, there is little change in the ascorbic acid content, however, there is better flavor when the juice is covered and stored in a refrigerator for no more than three days

WESTERGREN SEDIMENTATION RATE TECHNIQUE

To the Editor —*I am writing in reference to the query and minor note in* The Journal *of Dec 29, 1956, page 1674, regarding the Westergren sedimentation rate technique We use the Westergren method as regular office procedure on our patients and have been using a different normal range The consultant states that the normal for men is 1 to 3 mm and for women, 4 to 7 mm*

We are using a Westergren pipette, 300 mm long, 2 5 mm in diameter, graduated in millimeters up to 200 mm We use a 3 8% solution of sodium citrate This apparatus is made by Clay-Adams and the normal with this method is 0 to 15 mm for men and 0 to 20 mm for women after one hour I have checked other laboratory sources and find this to be the most frequently used normal standard for the Westergren method

*I noticed the reference to Ham and Curtis (*Medicine *17 447, 1938) as the source of reference I would appreciate the explanation of the great difference in normal standards recommended*

Arthur W Greenfield, M D
50 Anderson St
Hackensack, N J

The above comment was referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*It is agreed that a Westergren pipette is 300 mm long, 2 5 mm in internal diameter, and that when the blood is drawn up to a 200 mm mark it contains about 1 ml of blood The anticoagulant is an aqueous solution of 3 8 gm of sodium citrate per 100 ml This is used in a preparation of 0 2 ml of anticoagulant for every 0 8 ml of whole blood, making a final concentration of 760 mg of sodium citrate per 100 ml and a dilution of 20% of the blood with an aqueous solution*

Westergren, himself, gives the normal range of it to be 1 to 3 mm sedimentation for men and 4 to 7 mm sedimentation in one hour for women Other values that are higher are probably not normal and may be contributed to by anemia per se

VITAMIN K ADMINISTRATION

To the Editor —*The reply to the query on vitamin K administration, which appeared in* The Journal, *Jan 26, 1957, page 327, is somewhat misleading It is stated that 'vitamin K_1 appears to have some superiority over synthetic vitamin K preparations in the treatment of idiopathic hypoprothrombinemia' If the idiopathic type is considered the same as the congenital and hereditary types, that statement is* *erroneous, since neither the natural nor the synthetic vitamin K corrects the deficiency of this type of prothrombin activity In vitamin K deficiency such as occurs in the newborn infant or in the patient with obstructive jaundice both types of vitamin K are effective, but in the latter condition the synthetic water-soluble vitamin K has the advantage that it can be absorbed from the intestines in the absence of bile Excess amounts of vitamin K can depress the prothrombin time, particulaly in the presence of liver disease (Richards and Shapiro* J Pharmacol & Exper Therap 84 93, *1945)*

Armand J Quick, M D
Department of Biochemistry
Marquette University School Medicine
Milwaukee 3

The above comment was referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*In regard to the literature reference cited, while the citation is essentially correct from the contents of the paper, it may be worth while to quote the following from the authors' conclusions to this paper 'In man doses approximately ten times as great as those generally recommended for therapeutic use, given daily for a period of one week, induce no significant changes in the blood In normal subjects large doses of Hykinone can produce temporary hyperprothrombinemia, in cases of liver disease similar amounts of menadione bisulfite extend the prothrombin time"*

RECURRENT FACIAL SEBACEOUS CYSTS

To the Editor —*In the March 23, 1957, issue of* The Journal, *page 1095, under Queries and Minor Notes, there are discussed various surgical approaches for the treatment of recurrent facial sebaceous cysts May I offer a simple, but apparently not too widely known, procedure which I use in my dermatological practice for the removal of either sebaceous or epidermal inclusion cysts? The cosmetic result is much better than with scalpel excision and sutures, and the end-result is more complete and dependable than with incision*

The skin over the center of the cyst is anesthetized with Novocain injection With a 4-mm -diameter biopsy punch, a circular piece of skin, including the external portion of the sac wall, is removed Through the remaining hole the sac contents are expressed, and the sac is delivered in toto *with a hemostat Pressure is applied for a minute or two to minimize bleeding, after which the plug of skin, with the sac portion cut away (to prevent future recurrence) is replaced into the hole A dressing is applied and left in place for several days until the graft of replaced skin "takes" In this manner the sac is removed, no skin is lost, and no sutures are required*

A modification for the removal of scalp cysts consists in not replacing the skin plug but placing just one suture to prevent bleeding, since pressure dressings are difficult to apply on the scalp This method also eliminates the necessity of shaving the scalp, except for clipping a few hairs in the tiny operative field I have removed cysts on the scalp the size of an egg by this simple and short procedure

William M George, M D
Walnut Creek, Calif

The above comment was referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*There are actually hundreds of methods of removing sebaceous cysts The answer to the original inquiry made no attempt to describe all of them The method presented in the above comment is another good conservative measure for use on the face However, a tiny incision, such as mentioned in the original answer, leaves less scar than a sutured or grafted punch*

DRUGS INTERFERING WITH PROTEIN-BOUND IODINE DETERMINATION

To the Editor —*In a query and minor note published in the Dec 22, 1956, issue of* The Journal, *page 1582, a physician requested a list of drugs capable of causing a distorted blood protein-bound iodine level I noticed that desiccated thyroid, thyroglobulin, thyroxin, and sodium liothyronine (*l*-triiodothyronine, Cytomel) were omitted from this list Of course, it is known that desiccated thyroid, thyroglobulin, and* l*-thyroxin will increase the blood protein-bound iodine levels In contrast, sodium liothyronine will not increase these levels (I have seen no increase in protein-bound iodine values in patients receiving as much as 150 mcg per day) On the other hand, administration of sodium liothyronine may cause a decrease in blood protein bound iodine values, while the patient remains clinically euthyroid Because of the rapid cut-off of effects after withdrawal of sodium liothyronine, protein-bound iodine values generally return to pretreatment levels within a few weeks*

Martin C Sampson, M D
418 S 47th St
Philadelphia

The above comment was referred to the consultant who answered the original query, and his reply follows —Ed

To the Editor —*The original reply to the query and minor note in question was restricted to a consideration of iodine-containing drugs creating spuriously high protein-bound iodine levels The above comment draws attention to another way in which the levels may be effected The failure of sodium liothyronine to elevate protein-bound iodine levels is considered to be due to its rapid escape into the tissues, while the fall in the protein-bound iodine level that is often noted with its use is due to depression of endogenous thyroxin formation*

« Washington News »

Loan to Finance Health Projects in Latin America • •
Communists' Payments Cut Proportion of U S WHO Costs • •
President s Aid Asked to Help Enact Jenkins-Keogh Bill • •
HEW Officials Press for Aid-to-Medical-Schools Program • •

LOAN FOUR MILLION DOLLARS TO LATIN AMERICA FOR HEALTH PROJECTS

Two Latin American countries, Costa Rica and Panama, are moving ahead with projects in the health field underwritten by 2-million-dollar loans from the United States, granted by the International Cooperation Administration and handled by the Export-Import Bank Both loans run for 20 years, with interest at 3% if repaid in U S dollars or 4% if repaid in local currencies

Costa Rica will use its loan to help in constructing and equipping a children s hospital at San Jose, the first step in an integrated hospital program for the country A series of small city hospitals will operate in other localities, and the San Juan general hospital in San Jose will be gradually rebuilt

In working out the hospital program, Costa Rica and the United States have cooperated closely over a number of years, according to the ICA Plans and working drawings were handled by a Washington, D C, architectural firm, which also trained six Costa Rican engineers to carry on the project

The ICA reports that the children's hospital plan has aroused great enthusiasm in Costa Rica, and that $187,000 has been raised by popular subscription to help in financing

Panama's 2-million-dollar U S loan, matched by the same amount provided by Panama itself, will be used for construction of a sewerage system and improvements in the water system in the Matasnillo Basin, a suburban area of Panama City that also contains El Panama Hotel, a showplace

U S CONTRIBUTION TO WHO DROPS TO ONE THIRD

For the first time in the nine-year history of the World Health Organization, the U S contribution has dropped to one third of the total WHO budget, although the U S, like other members, is contributing more money this year The information was received in Washington from the Geneva meeting of the World Health Assembly, the governing body of WHO

The decrease in the U S percentage in this year s budget is the result of the return to active WHO membership of Russia and three satellite countries—Albania, Bulgaria, and Poland The total budget will be $10,700,000, of which the U S will pay about $3,600,000 The returning Communist countries will pay a total of $1,500,000

During the period the four countries were inactive, two budgets were prepared each year, the larger one including assessments against the four, because there is no mechanism in the WHO constitution providing for a withdrawal' The American contribution of a "third was calculated on this larger budget The other budget was the actual working budget, smaller than the official budget because the Communist contributions were missing The result was that the U S paid well over a third of the actual expenses

Last year, Congress, at the request of the administration, removed a limitation of 3 million dollars on the U S contribution

Six new states, including the United States, have been selected to name delegates to the WHO executive board, to serve for three years The other nations are Liberia, Australia, Western Germany, Egypt, and Afghanistan Cuba, Russia, and Thailand received votes but were not in the top six

Nations continuing on the board are Argentina, Canada, Ecuador, Finland, India, Italy, Mexico, Pakistan, the Philippines, Portugal, Syria, and the United Kingdom Outgoing members are Burma, Chile, France, Japan, Saudi Arabia, and the Union of South Africa

The board, which meets twice yearly, is composed of international health authorities who are designated by but not representatives of their governments Its functions are to put into effect the decisions and policies of the assembly and to be the assembly s executive organ

Still facing the assembly for a decision is a proposal by the United States to require a two thirds majority of members present and voting for action on budget matters Now these decisions are taken by a simple majority

APPEAL MADE TO PRESIDENT ON JENKINS-KEOGH

An appeal has been made directly to President Eisenhower, asking him to have the Treasury Department reexamine its position and support enactment of the Jenkins-Keogh legislation now before Congress The legislation would authorize the self-employed to put a part of their income into annuity funds, deferring income tax payment on the money until it is received after retirement Corporations now may do this for their employees

The White House was approached by the American Thrift Assembly for Ten Million Self-Employed in a letter signed by Lucius S Smith III, ATA secretary Mr Smith recalled that the President had supported this type legislation in 1952, and added

'If [this legislation] now contains any vice, it has eluded several of the foremost tax experts in the nation It is a fact that up to this time no member of the Ways and Means Committee or of the Treasury, or any government spokesman has voiced a single valid objection to the 1957 bill Certainly, 'loss of revenue cannot in our judgment successfully now be argued against this proposal

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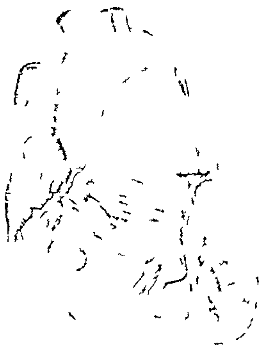

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(cont d) ↗

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Washington News—Continued

The letter lists the effects the plan would have, including an expansion of the machine of production, "significant" countering of the forces of inflation, "a timely alleviation' of financial stress now endured by the self-employed, and ultimate tax gains because of increases in capital

In conclusion, the message says

"Mr President, we respectfully ask you to examine with your staff the supporting data enclosed herewith [an analysis of the bill] We entreat the support of your administration for a sound and fair proposal, conscientiously drawn to terminate an inequity you long have recognized while at the same time conforming with the Treasury's praiseworthy efforts to counter inflation and encourage real savings

HEW OFFICIAL PRESSES FOR AID-TO-MEDICAL-SCHOOLS BILL

The need for well-trained physicians and other health specialists is one of today's most pressing problems, according to Elliott L Richardson, Assistant Secretary of Health, Education, and Welfare He notes three factors that complicate the situation (1) the growing complexity of medicine and the demands for specialized personnel, (2) the rise of population that by 1960 will total 178 million, and (3) the increasing demand of the American people for first-class hospitals and medical care

Mr Richardson told the Massachusetts Medical Society and the Massachusetts Medical Benevolent Society that one reason the supply-line of doctors is moving slowly is the limited capacity of medical schools to train doctors He suggested the administration's aid to medical-schools bill as a solution to the colleges' need for money to provide necessary laboratories and equipment

A second problem facing the doctors and the American people is the increasing cost of medical care, Mr Richardson declared From 1947-1949 to this year the cost-of-living index has risen 100% while the medical cost index has risen 137% The principal reason for the rise was a 75% increase in the cost of hospitalization Mr Richardson praised the voluntary health insurance companies for helping America solve this problem

Mr Richardson finds a partial solution to the costs of medical care in providing more flexible facilities for those who are not acutely ill More nursing homes and convalescent homes are needed, as well as outpatient clinics and diagnostic centers He points out that the extension of insurance against the costs of out-of hospital care and treatment would ease the cost problem

Mr Richardson concluded on this note

'The medical profession, if it is to live up to its high standards of service to the public, must recognize that the attitude of the American people toward their government has changed considerably in the last quarter of a century There is a greater tendency than in earlier generations to seek advancement of the general welfare through the federal government' But, he continued, 'if the medical profession continues to demonstrate its ability to meet these growing needs of the people, then we may expect our voluntary system not only to survive but to flourish"

Dr Aims G McGuinness, special assistant to Secretary Folsom, speaking before the St Louis Medical Society, also urged passage of the administration's aid-to-medical-schools bill and the health-insurance pooling bill He quoted from Secretary Folsom To fail to help meet the needs of medical schools in this emergency situation would be the worst kind of false economy In referring to the pooling proposal, Dr McGuinness termed it 'an important stimulus for further expansion of similar voluntary programs"

TEN MORE MEDICAL SCHOOLS JOIN MEND

With the addition in June of 10 more medical schools, the Defense Department's Medical Education for National Defense (MEND) program will be operating in 45 institutions, or more than half of the country's medical schools The Defense Department is now sifting applications from about 20 schools that want to participate

Under the program, now in its fifth year, the Defense Department makes available to faculty members the concepts of military and disaster medicine which are constantly being developed by the medical branches of the armed forces Courses, in turn, are developed for the students

The Defense Department, the Public Health Service, and the Federal Civil Defense Administration have joined in the program, which offers medical seminars, teaching materials, and lectures It includes such subjects as the basic principles of field medicine, the physiology of flight, submarine medicine, original research in bacteriology, immunology, and infectious diseases, environmental medicine with reference to survival in all climates, preventive medicine in its broadest scope, problems of atomic, biological, and chemical warfare, and treatment of mass casualties under wartime and disaster conditions

According to Assistant Secretary Frank Berry, the original cost to the Defense Department of the program per school was $15,000, and it is now down to between $9,000 and $11,000

MISCELLANY

Dr John R Heller, director of the National Cancer Institute, has hopes for early detection and successful treatment of five types of cancer through the cytological test, at present applied to uterine cancer The cytological test program, recently proved successful in a pilot project in Memphis, will be extended to include lung, gastrointestinal, urinary, and prostatic cancer The National Cancer Institute has allocated $2,197,000 for the research programs

In the week ending May 17, 2,000,000 cc of poliomyelitis vaccine was released, according to the Public Health Service, with the inventory totaling 8 300,000 cc Since Jan 1 a total of 35,100,000 cc has been produced and released

Four doctors from the National Heart Institute reported to the American College of Cardiology a new technique for locating openings in the heart's middle partition—injecting an indicator dye into the left chamber In the test, as the dye flushes through the tiny arteries of the earlobe, its concentration and transit time are accurately measured and the precise opening can be located

The Senate Committee on Labor and Public Welfare held a special meeting recently to review the artificial-limb research program of the Veterans Administration, the Department of Health, Education, and Welfare, and the Department of Defense The latest devices and techniques were demonstrated while orthopedic surgeons and research workers discussed the program

(cont d)

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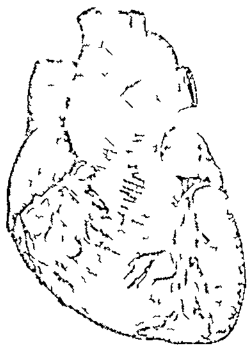

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MEETINGS

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1957 Annual Meeting New York June 3 7
1957 Clinical Meeting Philadelphia Dec 3 6
1958 Annual Meeting, San Francisco June 23 27
1958 Clinical Meeting Minneapolis Dec 2 5
1959 Annual Meeting Atlantic City, June 8 12
1959 Clinical Meeting Dallas Texas Dec 1 4

AMERICAN

June

American Academy of Tuberculosis Physicians Henry Hudson Hotel New York June 1 Dr Oscar S Levin P O Box 7011 Denver 6 Secretary

American Association of Neuropathologists Claridge Hotel Atlantic City N J June 16 17 Dr Leon Roizin 722 W 168th St New York 32 Secretary

American College of Angiology Plaza Hotel New York June 1 2 Dr Alfred Halpern 15 East 62d St New York 21 Executive Secretary

American Diabetes Association Hotel Commodore New York June 1-2 Dr Franklin B Peck Sr 1 East 45th St New York 17 Executive Secretary

American Hearing Society St Louis June 5 9 Mr Crayton Walker 1800 H St N W Washington 6 D C Executive Director

American Neurological Association Hotel Claridge Atlantic City N J June 17 19 Dr Charles Rupp 133 S 36th St Philadelphia 4 Secretary

American Orthopedic Association The Homestead Hot Springs Va June 24 27 Dr Harold A Sofield 715 Lake St Oak Park Ill Secretary

American Pediatric Society La Playa Hotel Carmel Calif June 17-19 Dr A C McGuinness 1427 I St N W Washington 5 D C Secretary

American Physicians Art Association Plaza Hotel New York June 3 7 Dr Francis H Redewill Jr 124 East Hadley St Whittier Calif Secretary

American Rheumatism Association Royal York Hotel Toronto Ont Canada June 23 28 Dr Edward F Hartung 580 Park Ave New York 21 Secretary

American Society of Facial Plastic Surgery Biltmore Hotel New York June 5 Dr Samuel M Bloom 123 E 83d St New York 28 Secretary

Association for Research in Ophthalmology Park Sheraton Hotel New York June 3 Dr Lorand V Johnson 10515 Carnegie Ave *Cleveland 6 Secretary*

Conference of Presidents and Other Officers of State Medical Associations *Waldorf-Astoria New York June 2 Mr James A Waggener 1021 Hume Mansur Bldg Indianapolis 4 Secretary*

Idaho State Medical Association Sun Valley June 16 19 Mr Armand L Bird 364 Sonna Bldg Boise Executive Secretary

Maine Medical Association The Samoset Hotel Rockland June 23 25 Dr Daniel F Hanley Dudley Coe Infirmary Bowdoin College Brunswick Executive Director

North American Chapter International Society of Angiology Biltmore Hotel New York June 1 Dr Henry Haimovici 105 E 90th St New York 28 Secretary

Society of Biological Psychiatry Claridge Hotel Atlantic City N J June 15 16 Dr George N Thompson 2010 Wilshire Blvd Los Angeles 57 Secretary

Society for Investigative Dermatology Belmont Plaza Hotel New York June 1 2 Dr Herman Beerman 255 S 17th St Philadelphia 3 Secretary

Society of Nuclear Medicine Skirvin Hotel Oklahoma City June 20 23 Dr Robert W Lackey 452 Metropolitan Bldg Denver Secretary

Society for Pediatric Research La Playa Hotel Carmel Calif June 16 21 Dr Sydney S Gellis 330 Brookline Ave Boston 15 Secretary

Society for Vascular Surgery Biltmore Hotel New York June 2 Dr Henry Swan 4200 E 9th Ave Denver 20 Secretary

The University of Michigan Regional Conference on Hypertension Ann Arbor Mich June 7 8 Dr John Sheldon Univ of Michigan Medical School Ann Arbor Mich Director

Woman s Auxiliary to the American Medical Association Roosevelt Hotel New York June 3-7 Miss Margaret Wolfe 535 N Dearborn St Chicago 10 Secretary

Wyoming State Medical Society Jackson Lake Lodge Moran June 16 19 Mr Arthur R Abbey Box 2036 Cheyenne, Executive Secretary

July

American Congress on Maternal Care Palmer House Chicago July 8-12 Mr Howard I Wells Jr 116 S Michigan Ave Chicago 3 Executive Secretary

Rocky Mountain Cancer Conference Shirley Savoy Hotel Denver July 10-11 Dr John S Bouslog 835 Republic Bldg Denver Chairman

INTERNATIONAL AND FOREIGN

June

Canadian Medical Association Edmonton Alberta Canada June 17-21 1957 Dr A D Kelly 150 St George Street Toronto 5 Ont Canada General Secretary

International Congress on Medical and Scientific Film Palace of Expositions at the Valentino Turin Italy June 1-9 1957 For information address Secretariat Minerva Medica Corso Bramante 83 85 Turin Italy

International Congress on Medicine and Surgery Palazzo of Expositions at the Valentino Turin Italy June 1-9 1957 For information address Segreteria Generale Minerva Medica Corso Bramante 83-85 *Turin Italy*

International Congress of Photobiology *Torino* Italy June 2 8 1957 For information address Prof Enrico Benassi Dept of Radiology University of Torino Torino Italy

International Congress on Rheumatic Diseases *Toronto Ont* Canada June 23 28 1957 For information address International Congress on Rheumatic Diseases P O Box 237 Terminal A Toronto Ont Canada

International Convention of X-Ray Technicians Sheraton Park *Hotel* Washington D C U S A June 8 13 1957 Miss Leslie A Majors R T 5710 Newton St Cheverly Md U S A Chairman, Publicity Committee

International Hospital Federation Lisbon Portugal June 3 7 1957 Capt J E Stone 10 Old Jewry London EC2 England Secretary General

International Therapeutic Congress Utrecht Netherlands June 4 6 1957 Dr F A Nelemans Vondellaan 6 Utrecht Pays Bas Netherlands Secretary General

William Harvey Tercentenary Congress Royal College of Surgeons London England June 3 7 1957 Dr D Geraint James Harveian Society of London 11 Chandos St Cavendish Square London W 1 England Honorary Secretary

July

British Medical Association Newcastle upon Tyne July 15 19 1957 Dr A Macrae B M A House Tavistock Square London W C 1 England Secretary

International Congress of Clinical Pathology Brussels Belgium, July 15-20 1957 Prof M Welsch Service de Bacteriologie et de Parasitologie Universite de Liege 32 Blvd de la Constitution Liege Belgium Secretary General

International Congress of Dermatology *Stockholm Sweden* July 31 *Aug 6 1957 Dr C H Floden* Karolinska Sjukhuset Hudkliniken Stockholm 60 Sweden Secretary General

International Congress of Electroencephalography and Clinical Neurophysiology Brussels Belgium July 21-28 1957 For information address Dr R G Bickford Mayo Clinic Rochester Minnesota U S A

International Congress of Neurological Sciences Brussels Belgium July 21-28 1957 For information address Dr Pearce Bailey National *Institute of Health Bethesda 14 Maryland U S A*

International Congress of Neuropathology Brussels Belgium July 21-28 1957 Dr Ludo van Bogaert 47 rue de l Harmonie Antwerp Belgium Secretary General

International Congress of Neurosurgery Brussels Belgium July 21 28 1957 For information address Dr William B Scoville 85 Jefferson Street Hartford Connecticut U S A

International Congress of Nutrition Paris France July 24 29, 1957 *For information address Congress International de Nutrition 71 Blvd.* Pereire Paris 17e France

International Congress on Occupational Health Helsinki Finland, July 1-6 1957 Dr Pertti Sumari c/o Tyoter Veyslaitos Haattmaninkatu 1 Helsinki-Toolo Finland Secretary General

International Congress of Permanent International Committee on Industrial Medicine Helsinki Finland July 1-6 1957 For information write Secretary General 3 Chemin de l Escalada Geneva Switzerland

International Congress of Psychology Brussels Belgium July 28 Aug 3 1957 Dr M Louis Delys 296 Ave des Sept Bonniers Forest Brussels Belgium Secretary General

International Gerontological Congress Merano Bolzano Italy July 14 19 1957 For information address Segreteria Quarto Congresso Internazionale de Gerontologia Viale Morgagni 85 Firenze Italy

International League Against Epilepsy Brussels Belgium July 21 28 1957 Dr Radermecker Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Meeting on Forensic Pathology Brussels Belgium July 20 21 1957 For information address Dr F E Camps Dept of Forensic Medicine The London Hosp Medical College Turner St London EI England or Dr Arthur H Dearing Executive Secretary College of American Pathologists 2115 Prudential Plaza Chicago 1 Ill U S A

International Neurological Congress Brussels Belgium July 21 28 1957 Dr Ludo van Bogaert Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Poliomyelitis Conference Geneva Switzerland July 8 12 1957 Secretariat Hotel du Rhone Geneva Switzerland

International Psychoanalytical Association Paris France July 28-Aug 1 1957 For information write Dr S Nacht 187 rue St Jacques Paris France

International Society of Geographical Pathology Paris France July 9-11 1957 For information address Dr J P Hardouin 21 Avenue Pierre de Serbie Paris 16 France

International Society for the Welfare of Cripples London England July 22 27 1957 For information address Miss M Drury 34 Eccleston Square London S W 1 England

International Symposium on Medical Social Aspects of Senile Nervous Diseases Venice Italy July 20 21 1957 For information address Secretariate Viale Morgagni 85 Firenze Italy

Neuroradiologic Symposium Brussels Belgium July 21 28 1957 For information address Professor Melot Hôpital Universitaire St Pierre Brussels Belgium Secretary General

(Continued on page 28)

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August

Argentine Congress of Gastroenterology Salta Argentina S A Aug 12-17 1957 Secretariat Avenida Santa Fe 1171 Buenos Aires Argentina S A

Congress of International Society for Cell Biology St Andrews Fife Scotland Aug 28 Sept 3 1957 Prof H G Callan Bell Pettigrew Museum The University St Andrews Fife Scotland Secretary General.

International Congress on the Biology of the Hair Follicle and the Growth of Hair Royal Society of Medicine London England Aug 7-9 1957 Dr G H Bourne London Hospital Medical College, Whitechapel London E 1 England Hon Secretary

International Congress of European Society of Haematology Copenhagen Denmark Aug 26-31 1957 Dr Aage Videbask Blegdamsvej 11 Copenhagen Denmark Secretary General

International Congress on Group Psychotherapy Zurich Switzerland Aug 29 31 1957 For information write Dr Joshua Bierer 140 Harley St London W 1 England

International Society for the Study of Biological Rhythms Semmering Austria Aug 26 28 1957 For information write Prof A Jores II Med Universtats Klinik Hamburg Eppendorf Germany

International Symposium on Curare and Curarizing Substances University of Brazil Rio de Janeiro Brazil Aug 5 10 1957 For information write Prof Carlos Chagas Instituto de Biofisica Universidade de Brazil 458 Avenida Pasteur Rio de Janeiro Brazil or Prof Daniel Bovet Instituto Superiore di Sanita 299 Viale Regina Elena Rome Italy

World Federation for Mental Health Copenhagen Denmark Aug 11-17 1957 Miss E M Thornton M A 19 Manchester St London W 1 England *Secretary General*

September

Congress of International Society of Orthopedic Surgery and Traumatology Barcelona Spain Sept 16-21 1957 For information address International Society of Orthopedic Surgery and Traumatology 34 rue Montoyer Brussels Belgium

Congress of International Union of Railway Medical Services Paris France Sept 16 21 1957 For information write Dr J Ortega 41 rue Michelet Paris 6 France

International Conference on Radio Isotopes in Scientific Research *Paris France Sept 9 20 1957 For information address United* Nations Educational Scientific and Cultural Organization 19 Avenue Kleber Paris 16 France

International Congress of the International Union of the Medical Press London England Sept 13 14 1957 For information write British Medical Association B M A House Tavistock Square London W C 1 England

International Congress of Military Medicine and Pharmacy Beograd and Opatija Yugoslavia Sept 29 Oct 5 1957 Colonel Dr Aleksandar Mezic rue Nemanjina 15 Beograd Yugoslavia Secretary General

International Congress of Psychiatry Zurich Switzerland Sept 1 7 1957 For information write Prof J Wyrsch Stans (Lucerne) Switzerland

International Symposium of Medicine and Social Hygiene Trieste September 6 12 1957 Dr Mario Lovenati Via Cavana 18 Trieste Secretary General

World Medical Association Istanbul Turkey Sept 29 Oct 5 1957 Dr Louis H Bauer 10 Columbus Circle New York 19 New York U S A Secretary General

October

Assembly of Association of French Speaking Doctors Great Hall Faculty of Medicine 85 Boulevard Saint Germain Paris France Oct 16 18 1957 For information address General Secretary Congrés Francais de Medecine Prof G Boudin Paris France

Congress of International Society of Surgery Mexico City Mexico Oct 27-Nov 2 1957 Dr L Dejardin 141 rue Belliard Brussels Belgium General Secretary

French Congress of Otolaryngology Faculte de Médecine de Paris Paris France Oct 15 18 1957 For information address Administrative Secretary French Congress of Otolaryngology 17 Rue de Buci Paris France

International Congress of International Society of Angiology Atlantic City N J U S A Oct 10 13 1957 Dr H Haimovici 105 East 90th Street New York 28 New York U S A Secretary General

November

Inter American Congress of Pan American Medical Association Mexico City Mexico Nov 18 22 1957 Dr Joseph J Eller 745 Fifth Ave New York 22 N Y U S A Executive Director

Pacific Science Congress Bangkok Thailand Nov 18-Dec 2 1957 For information address Pacific Science Council Secretariat Bishop Museum Honolulu 17 Hawaii

Pan American Congress of Endocrinology Buenos Aires Argentina Nov 3 9 1957 For information address Secretaria General Sociedad Argentina de Endocrinologia y Metabolisms Santa Fe 1171 Buenos Aires Argentina

Pan Pacific Surgical Congress Honolulu Hawaii Nov 14 22 1957 Dr F J Pinkerton Room 230 Alexander Young Bldg Honolulu 13 Hawaii Director General

1958

April

International Congress of Internal Medicine Sheraton Hotel Philadelphia Pa U S A April 24-26 Mr E R Loveland 4200 Pine St Philadelphia 4 Pa U S A Secretary General

International Congress of Legal and Social Medecine Madrid Spain April 16-19 For information address Prof B Piga Dept of Legal Medicine Madrid University Madrid Spain

MAGAZINE—TELEVISION REPORT

The following list of current medical articles in mass circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of The Journal *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported*

MAGAZINES

Coronet, June, 1957

Why I Became a Doctor,' by Albert Schweitzer

An excerpt from Dr Schweitzer's book Out of My Life and Thought, in which the famous physician and humanitarian states 'I wanted to be a doctor that I might be able to work without having to talk

The Right Way to Raise a Bright Child, by Abraham H Lass

The author, a principal of Abraham Lincoln High School, Brooklyn, N Y, recommends early recognition of bright children and special handling of them He writes At best, we don't have too many bright children We can't afford to waste even one'

The Giraffe Nature's Magnificent Mistake,' by Peter Farb

According to the article, the secret to the giraffe's circulation and blood pressure may afford new insight to medical scientists who are seeking to find cures for heart ailments

My Patients Are My God,' by Marcus Bach

According to the article, Dr Shree Murugappa Chennaveerappa Modi has performed more than 40,000 eye operations on his patients in India, 99% of which have been successful Dr Modi is credited with performing 270 operations in a single day

Life, May 20, 1957

Doctor Answers Distant Call

The article gives a brief account, with pictures, of Dr Mikio Kato, 33 years old, of Kobe, Japan, who left his native country to set up practice in isolated Tangier Island, Va According to the article, special aid was needed to bypass immigration difficulties before he could enter the United States

The Saturday Evening Post, June 1 1957

My First Ten Years with a Hearing Aid, by J C Furnas

The author gives a first-hand account of his experience with the new electronic hearing aids and tells how they have helped the hard of hearing

Good Housekeeping, June, 1957

Crisis! Accidental Poisoning?

This article gives an account of the many Poison Control Centers now in operation in various cities in the United States combined with a listing of the centers by states

Family Circle, June, 1957

I Died—and Lived Again, by Catherine Jones

This article tells of how a 43-year-old woman dies while being delivered of a child by cesarean section, and remains dead for eight minutes until cardiac massage, oxygen, and other emergency procedures revive her The mother made a complete recovery, although for a time it was thought she had suffered permanent brain damage

The Better Way in Brief—Radio Controlled Ambulances

A regular *Good Housekeeping* feature describes Mexico City's radio-controlled ambulance service Patients en route to the hospital can be cared for and even prepared for surgery while the hospital prepares for the patient's arrival by communication between the hospital and the doctor in the ambulance

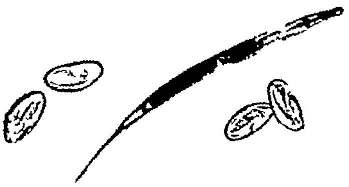
'*Hepatitis—Another* Communicable Disease,' by L Emmett Holt Jr M D

As a part of the magazine's regular feature The Children's Center, the article tells parents how to recognize the symptoms of infectious hepatitis and what they should know about the disease

The American Weekly, June 2, 1957

They've Taken the Risk out of Childbirth by William Engle

In a summary of advances in childbirth technique and prenatal care during recent years, the article states If you are one of those having a baby this year, the chances are about 1,999 out of 2 000 that you will come through safely



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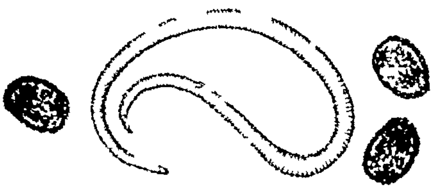

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NATIONAL ORGANIZATIONS OF MEDICAL INTEREST

SOCIETY	PRESIDENT	SECRETARY	MEETING
American			
Public Health Association	John W Knutson Washington D C	R M Atwater 1790 Broadway New York 19	Cleveland Nov 11 15
Radium Society	N A McCormick Windsor Ont Canada	Theodore R Miller 139 East 36th St New York 16	
Rheumatism Assn	William D Robinson Ann Arbor Mich	Edward F Hartung 580 Park Ave New York 21	Toronto Can June 23 28
Roentgen Ray Society	W Edward Chamberlain Philadelphia 40	Barton R Young Germantown Hosp Philadelphia 44	Washington D C Oct 1 4
School Health Assn	Fred V Hein Chicago	A O DeWeese 515 E Main St Kent Ohio	Cleveland Nov 16
Society for Clinical Investigation	S E Bradley New York 32	J D Meyers U of Pittsburgh Sch of Med Pittsburgh 13	
Society for Experimental Pathology	Emory Warner Iowa City Ia	Cyrus C Erickson 858 Madison Ave Memphis 3 Tenn	Philadelphia Apr 11 18
Society for Pharm & Ex Ther	Harry Beckman Milwaukee 3	Harold Hodge Univ of Rochester Rochester 20 N Y	
Society for the Study of Sterility	W T Pommerenke Rochester N Y	H H Thomas 520 S 19th St Birmingham Ala	
Society of Anesthesiologists	Irving M Pallin Brooklyn N Y	J F Remlinger Jr 188 W Randolph St Chicago 1	Los Angeles Oct 14 19
Society of Biological Chemists	John T Edsall Cambridge Mass	Philip Handler Duke University Durham N C	Philadelphia Apr 13 18
Society of Clinical Pathologists	John L Goforth Dallas Texas	C G Culbertson 1040 W Michigan St Indianapolis 6	New Orleans Sept 29 Oct 4
Society of Maxillofacial Surgeons	Douglas B Parker New Orleans	John A Drummond 1414 Drummond St Montreal 25 Can	
Society of Tropical Medicine & Hygiene	Justin M Andrews Washington D C	R B Hill 3575 St Gaudens Rd Miami 33 Fla	Philadelphia Oct 30 Nov
Surgical Assn	Loyal Davis Chicago	R Kennedy Gilchrist 59 E Madison St Chicago 3	
Therapeutic Society	Gerald H Pratt New York	O B Hunter Jr 915 19th St N W Washington D C	
Trudeau Society	Paul C Samson Lafayette Calif	William C Childress 1790 Broadway New York 19	
Urological Assn	George C Prather Brookline 46 Mass	Samuel L Raines 188 S Bellevue Blvd Memphis Tenn	
Venereal Disease Assn	Charles R Rein New York 19	S R Taggart 300 Indiana Ave N W Wash 1 D C	
Veterinary Medical Assn	W O Kester Washington D C	J C Hardenbergh 600 S Michigan Ave Chicago 5	Cleveland Aug 19 22
Assn for Research in Nervous & Ment Dis	Francis Braceland Hartford Conn	Rollo J Masselink 700 W 168th St New York 32	New York Dec 13 14
Assn for Research in Ophthalmology	T E Sanders St Louis	Lorand V Johnson 10515 Carnegie Ave Cleveland 6	New York June 3
Assn of American Medical Colleges	John B Youmans Nashville Tenn	Dean F Smiley 2530 Ridge Ave Evanston Ill	Atlantic City N J Oct 21 23
Assn of American Physicians	C Phillip Miller Chicago 37	P B Beeson Yale U Sch of Med New Haven 11 Conn	
Assn of Life Ins Med Dir of America	Edson F Getman New York	Royal S Schaaf P O Box 534 Newark 1 N J	New York Oct 23
Assn of Medical Illustrators	Mr Lee Allen Iowa City	Miss Rose M Reynolds 42nd and Dewey Ave Omaha 5	Montreal Can Oct 7 9
Assn of Military Surgeons of U S	A R Koontz Baltimore	R E Bitner 1726 I St N W Washington 6 D C	Washington D C Oct 28 30
Assn of State & Territorial Health Officers	Franklin I Yoder Cheyenne Wyo	M T Shanholtz State Office Bldg Richmond Va	Washington D C Nov 1 9
Biological Photographic Assn	Mr H Lou Gibson Rochester 4 N Y	Miss J Waters Box 1668 Grand Central P O N Y 17	
Central Assn of Ob & Gyn	Arthur B Hunt Rochester Minn	Edwin J DeCosta 104 S Michigan Ave Chicago 3	Omaha Oct 24 26
Central Neuropsychiatric Assn	G Wilee Robinson Jr Kansas City Mo	R M Patterson Ohio S Univ Col of Med Columbus 10 Ohio	Dallas Tex Oct 18 19
Central Society for Clinical Research	Kenneth Kohbstead Indianapolis	William S Jordan Jr 2103 Adelbert Rd Cleveland 6	Chicago 195
Central Surgical Assn	Robert M Zollinger Columbus 10 Ohio	Charles D Branch 102 North St Peoria Ill	
Clinical Orthopaedic Society	J Neill Garber Indianapolis 4	Marcus J Stewart 869 Madison Ave Memphis Tenn	Kansas City Mo Oct 11 12
College of American Pathologists	W A D Anderson Miami Fla	A H Dearing Prudential Plaza Suite 2115 Chicago 1	New Orleans Sept 30 Oct 4
Gerontological Society	William B Kountz St Louis 9	Nathan W Shock Baltimore City Hospitals Baltimore 24	
Industrial Medical Association	Jerome W Shilling Los Angeles	H Glenn Gardiner 3710 Watling St East Chicago Ind	April 23
Interstate Postgrad Med Assn of N A	J Mather Pfeiffenberger Alton Illinois	Erwin R Schmidt Box 1109 Madison 1 Wis	Chicago Sept 30 Oct. 3
Medical Library Assn	Miss Bertha B Hallam Portland 1 Ore	Mrs H T Perkins 333 Cedar St New Haven 11 Conn	
National Medical Assn	Theodore R M Howard Chicago	John T Givens 1108 Church St Norfolk 10 Va	Cleveland Aug 12 1
National Multiple Sclerosis Society	Mr Ralph C Glock New York	Mr Donald Vail 257 Fourth Ave New York 10	New York March 1957
National Proctologic Assn	R A Winters Chicago	George E Mueller 55 E Madison St Chicago 2	
National Tuberculosis Assn	Howard W Bosworth Los Angeles 26	Mrs Morrell DeReiga 1790 Broadway New York 19	
Neurosurgical Society of America	Lyle A French Minneapolis	Frank P Smith 260 Crittenden Blvd Rochester 20 N Y	
Radiological Society of North America	C Edgar Virden Kansas City Mo	D S Childs 713 E Genesee St Syracuse N Y	Chicago Nov 17 22
Society for Investigative Dermatology	Maximilian E Obermayer Los Angeles 5	Herman Beerman 255 S 17th St Philadelphia 3	New York June 1
Society for Pediatric Research	William M Wallace Cleveland 6	Sydney S Gellis 330 Brookline Ave Boston 15	Carmel Calif June 16 1
Society for Vascular Surgery	Arthur H Blakemore New York 32	Henry Swan 4200 East 9th Ave Denver 20	New York June 2
Society of American Bacteriologists	C A Stuart Providence R I	J H Bailey Sterling Winthrop Res Inst Rensselaer N Y	
Society of Biological Psychiatry	Margaret A Kennard Vancouver B C	George N Thompson 2010 Wilshire Blvd Los Angeles 57	Atlantic City N J June 1 16
Society of Clinical Surgery	Richard K Gilchrist Jr Chicago	I T Albritten Jr Univ of Kans Kansas City Kan	
Society of Neurological Surgeons	William German New Haven Conn	Bronson S Ray 525 E 68th St New York 21	
Society of University Surgeons	Harold A Zintel New York	James Hardy University Medical Center Jackson Miss	
Southeastern Surgical Congress	Howard Mahorner New Orleans 13 La	B T Beasley 45 Edgewood Ave S E Atlanta 3 Ga	
Southern Medical Assn	J I Culpepper Jr Hattiesburg Miss	Mr V O Foster Empire Bldg Birmingham 3 Ala	Miami Beach Fla Nov 11 14
Southern Surgical Assn	Floyd W McRae Atlanta Ga	George C Finney 547 St Paul St Baltimore 18	W Sulphur Spgs W Va Dec 10 12
Southwestern Medical Assn	Celso C Stapp El Paso Texas	Russell L Deter 1501 Arizona St El Paso Tex	El Paso Tex Oct 9 11
Southwestern Surgical Congress	Kenneth C Sawyer Denver	C M O'Leary 207 Plaza Court Bldg Oklahoma City	Houston Tex Mar 31 Apr
Student American Medical Assn	Mr Kent Guild Chicago	Mr Russell F Staudacher 510 N Dearborn St Chicago 10	
The Endocrine Society	Lawson Wilkins Baltimore	H H Turner 1200 N Walker St Oklahoma City	
U S Section Internat'l Coll of Surgeons	Curtice Rosser Dallas Texas	Karl Meyer 1516 Lake Shore Dr Chicago	Chicago Sept 9 12
Western Industrial Medical Assn	Douglas D McKinnon Los Angeles	Edward F Zaik 40 S Olive St Los Angeles 14	Los Angeles Oct 4 6
Western Orthopedic Assn	Samuel Mathews Beverly Hills Calif	Walter Scott 344 21st St Oakland 12 Calif	Santa Barbara Calif Oct 20
Western Society of Electro Encephalography	Arthur A Ward Jr Seattle	S N Berens 407 Boren Ave Seattle	
Western Surgical Assn	Everett P Coleman Canton Ill	John T Reynolds 61 N Michigan Blvd Chicago 11	Salt Lake City Nov 21 23
Woman's Auxiliary to the Am Med Assn	Mrs Robert Flanders Manchester N H	Miss Margaret Wolfe 535 N Dearborn St Chicago 10	New York June 3
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SURGICAL MANAGEMENT OF THE SEVERELY BURNED CHILD

Robert S Smith, M D, Boise, Idaho

When a child suffers an extensive third-degree burn, the initial shock of the injury is frequently so great as to threaten an immediate fatality Aggressive and intelligent supportive treatment will give the youthful patient a good chance to survive this first critical period, however In most of these cases, much greater effort on the part of the attending surgeon will be required subsequently before the skin closure which is essential to recovery is obtained Final restoration of body function and features may be achieved only by multiple secondary operative procedures and after a long period of careful surgical supervision

Permanent complete wound coverage by early resection of devitalized tissue and a single application of free sheet-like grafts of skin would provide the ideal solution for most of the problems of the severely burned child In extensive deep burns, with involvement approaching 50% of the body surface, rapid wound closure is usually not possible In these severe cases, the large size of the wounds frequently presents such technical difficulties that operative management in stages is advisable

Biological Dressings

Brown and his associates [1] have presented a good case for the use of skin homografts for early coverage of severe burn wounds Homografts, in effect, have provided biological dressings and have appeared to give lifesaving support to many patients

Grafts derived from cadaver sources may be kept available for emergency use in a skin bank and, when properly applied, will "take" on a burn wound, whether or not donor and recipient blood groups are compatible Apparently as the result of an antigen-antibody reaction, however almost all these homografts will begin to disintegrate after 2 weeks, and their total disappearance may be expected after 8 to 10 weeks In two unusual situations homografts appear to persist indefinitely when a skin graft is transferred from one identical twin to another,[2] and when a skin graft is applied to a recipient with agammaglobulinemia [3]

• Two case histories illustrate the surgical principles involved in the care of the severely burned child A 5 year old girl with extensive third degree burns was carried through the initial period of shock by supportive treatment which included the administration of dextrose, electrolytes, serum albumin, and whole blood by venoclysis Dressings were changed at four to-six day intervals under general anesthesia in the operating room Wound infection was avoided, and sufficient skin for stamp grafts was obtained from donor areas which, since healing, are covered by ordinary clothing A 12-year old girl, seven months after a similar burn, showed severe depletion and anemia, extensive infection, and pressure sores on both hips Multiple transfusions were necessary to improve the general condition of the patient antibiotics stopped the fever Dressings were changed under general anesthesia, and subsequent graftings of skin were successful An aggressive two way plan of action is indicated in severe burns general, systemic measures to combat infection and improve the patient's nutritional state, and specific, surgical measures to bring about the covering of the open wound with skin at the earliest possible moment The skin coverage obtained by stamp like grafts is permanent and in the experience of the author has proved to be of generally good functional quality

After the application of homografts, patients are given vigorous general supportive treatment in preparation for the inevitable replacement of the homografts by autografts Large sheets of the patient's own skin are preferable for replacement procedures, but Brown and Fryer [4] have suggested that, when donor sites are limited, autografts may be placed in strips between dissolving homografts in such a way that their proliferation eventually provides a permanent epithelial coverage Using a technique based on similar considerations, Jackson [5] has successfully treated a large number of severely burned patients by the primary application of homografts and autografts in alternating strips

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Read before the 10th Clinical Meeting of the American Medical Association, Seattle, Nov 29, 1956

Chronic Burn Wounds

Scattered stamp-like grafts of the patient's own skin may be used to obtain wound closure in the large chronic burns that are occasionally seen in children These patients, who represent serious therapeutic failures, may present themselves months after their thermal injury in a very debilitated condition

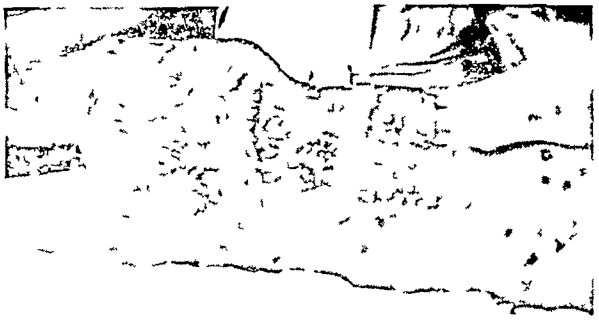

Fig 5 (case 2) —Large granulating wounds of back and left thigh are present seven months after severe burn There is evidence of attempt to obtain healing by pinch grafts Scars in interscapular region indicate donor site for pinch grafts

The wounds in such cases are characterized by unhealthy, soft, exuberant granulations and show the profuse purulent discharges which typify established infections In many cases, spontaneous healing reactions already may have produced scar contractures affecting important joints, and pressure sores are common

An aggressive two-way plan of management is indicated in these patients General measures to improve nutrition and combat infection must be pushed vigorously At the same time, the open wound must be covered with skin at the earliest possible moment

When donor areas are limited, the use of scattered stamp-like dermatome grafts may represent the best solution of the skin-coverage problem It is essential to prepare the chronic open wound carefully, however, before skin grafts are applied The application, with pressure, of dressings of fine mesh gauze impregnated with a bland ointment is usually effective in producing in a short time a wound environment which is favorable to skin grafting The edematous granulations flatten out, becoming firm and more vascular, and wound discharges diminish

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Report of Cases

The following case reports illustrate the use of free stamp-like dermatome grafts in the management of acute and chronic wounds resulting from severe burns

Case 1 —The patient, a female aged 5 years suffered an extensive burn when her nightgown caught fire from an open fireplace A third-degree burn involved the entire back, the buttocks, the right side of the chest, and most of the neck (fig 1), second degree and third-degree burns involved more than 50% of the right upper extremity and the right thigh Careful supportive treatment, including the administration of dextrose, electrolytes, serum albumin, and whole blood through a cannula inserted by cut-down in an ankle vein carried the patient through the initial period of shock

Coverage of the large burn wound was subsequently accomplished by the staged application of stamp like dermatome grafts (fig 2) Dressings were changed at four to six day intervals in the operating room, with the patient under general anesthesia, and five skin grafts were performed Antibiotics were administered on a prophylactic basis Combiotic, a combination of penicillin and dihydrostreptomycin was used first and later tetracycline (Tetracyn) Wound infection did not develop Healing was obtained in eight weeks

The patient has had secondary insertions of large sheet like dermatome grafts to control contracture tendencies on the right side of the neck and in the right axilla At present after eight months there is no serious functional difficulty (fig 3) The right upper extremity and the right side of the neck are involved by hypertrophic scars, however Further reconstructive operations appear advisable in this case in order to obtain the best possible result as regards function and appearance Donor sites are abundant since there is minimal scarring of the original stamp graft donor areas on the left side of the chest abdomen and thighs (fig 4) no grafts were cut from the left arm and shoulder or from other sites which cannot be covered by ordinary clothing

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enzymes to facilitate debridement would seem unnecessary in most cases While a few deep sloughs will separate slowly and tend to hang on, most of the wound is rapidly cleared of devitalized tissue and is soon ready to receive split-thickness skin grafts Skin grafts taken by the Reese dermatome, when left on their rubber backing, are readily cut up into pieces of postage stamp size, or larger, and distributed over denuded areas The free grafts are held in place solely by pressure dressings and may be expected to show good 'takes' when their rubber backing is removed after four or five days Since the small grafts present many edges for epithelial proliferation, maximal skin coverage is secured by each operative procedure

All dressings are changed and grafts applied with the patient under general anesthesia It is believed that in the child patient the psychological benefits to be derived from the avoidance of pain in dressing changes far outweigh the theoretical disadvantages of multiple anesthetizations

With the use of these techniques and with initiation of grafting operations as soon as skin sloughs begin to separate, wound coverage in the severely burned child can be accomplished within a reasonably short time When granulations form, these are kept flat and firm by compression dressings, and stamp grafts may be applied successfully on this heathy base without further preparation Staging of the operative procedures provides a wide margin of safety Each operation should require only a brief anesthetization, and there should be little blood loss

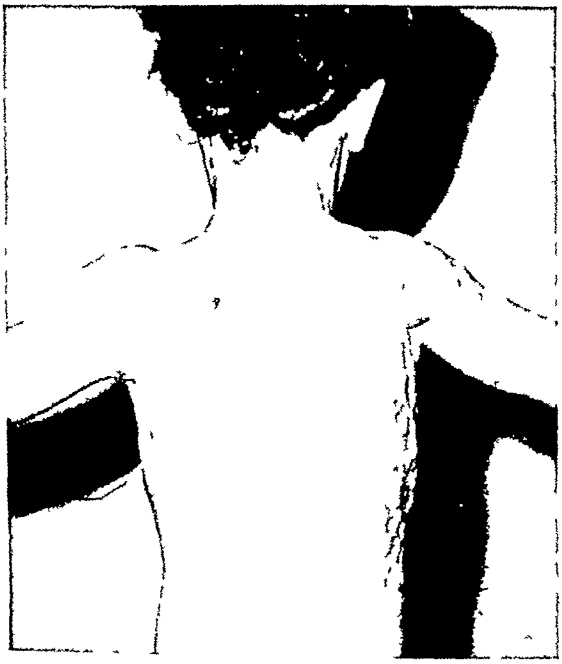
Fig 3 (case 1)—Eight months after burn stamp grafts on back and neck show excellent function

In conjunction with the treatment of the local wound, measures are taken to maintain the patient in a state of good general nutrition If the nourishment taken voluntarily is insufficient, supplementary tube feedings are employed Transfusions of whole blood are given to replace elements lost through exudates, and broad-spectrum antibiotics may be administered to prevent sepsis or the development of infection in tissues imediately involved by the burn

It is true that the skin coverage secured by the use of free stamp-like grafts may be somewhat deficient from the cosmetic standpoint These grafts have shown excellent late function, however, when they have been applied to plane surfaces of the body Since each split-graft segment carries a substantial dermal substratum, the ultimate development of a high degree of functional resiliency in grafted areas may be expected

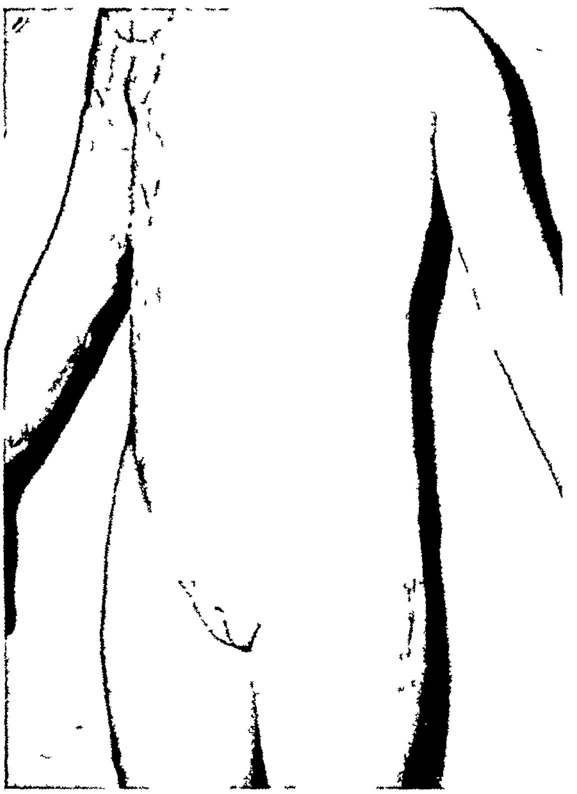
Fig 4 (case 1)—Eight months after burn donor sites on abdomen, chest (below left nipple) entire left thigh, and inner surface of right thigh show minimal scarring and may be used again to supply skin for reconstructive purposes All donor sites are covered by ordinary clothing

When feasible, relatively thick sheet-like dermatome grafts should be applied as early as possible in situations in which crippling scar contractures are prone to develop Early and complete skin coverage is very desirable in wounds involving the face, neck axillas and groins and the popliteal and antecubital regions If, in spite of all preventive efforts, serious joint contractures occur, these may be corrected by secondary operations Final satisfactory results may be secured by further insertions of larger dermatome grafts or by the use of Z-plasties, the shifting of skin flaps or the free transfer of full-thickness skin grafts The fact that the original dermatome grafts are cut at a depth of 0 01 in or less allows additional 'crops of skin to be taken as necessary from the available donor areas

On the basis of experimental findings, Najarian and McCorkle[6] have recently suggested the use of a suspension of skin particles, a so-called skin milk shake, to obtain rapid healing of large third-degree burn wounds. The value of this technique has yet to be determined in actual practice. It is expected, however, that the skin coverage supplied by the method will be most applicable as a biological dressing to prevent sepsis in severely burned patients. It is probable that little or no dermal pad will develop as the wounds heal, and secondary reconstructions with the use of sheet-like autogenous split grafts will probably be necessary in most locations for optimum function.

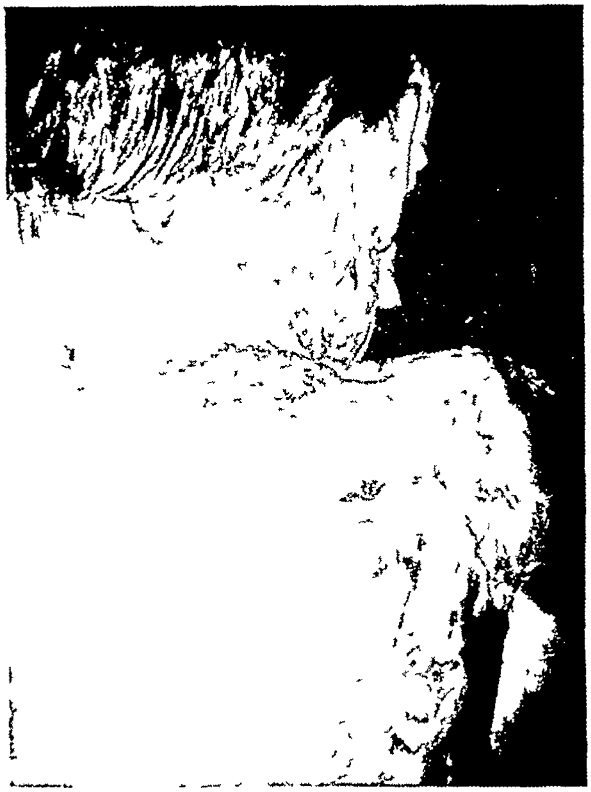

Fig. 1 (case 1).—Third degree burns of back and neck; skin sloughs are beginning to separate two weeks after severe burn.

Segmented Dermatome Grafts

One clinically proved method of supplying definitive skin coverage in extensive burns depends on the primary application of autogenous dermatome grafts in relatively small rectangular segments. These grafts are scattered over the wound, do not require suture, and have been described variously in the literature as "stamp" or "patch"[8] grafts. The principle of the technique is not new, having been introduced by Goode in 1935,[9] but the method has been greatly facilitated by recent refinements in the techniques of cutting and handling thin skin grafts.

Small skin patches have been found to "take" more surely on recently denuded and granulating surfaces than large sheets of skin, and they are relatively insusceptible to the effects of infection and hematoma formation. Stamp-like dermatome grafts are particularly efficacious in supplying skin coverage in severely burned children when the wound resulting from a deep thermal injury is very large and available donor skin is limited. If applied to a burn wound in small free pieces, these grafts may exhibit an appreciable loss of normal skin tension and show a troublesome tendency to curl and roll in. Dermatome grafts which have been cemented to rayon fabric,[10] Pliofilm,[11] or the rubber-fiber backing of the Reese Dermatape,[1] however, show no tendency to contract when cut up into small segments and may be effectively applied to wound bases by ordinary pressure dressings.

Acute Burns

A definite plan of closed-wound management is followed when stamp-like dermatome grafts are to be applied in the treatment of a severe acute burn in a child. Because the full thickness of the skin is involved, and since the majority of patients show circumferential injury, there are few indications for exposure methods.

Using an aseptic technique, the surgeon usually subjects the burned areas to an initial gentle cleansing and applies a pressure dressing. The basic layer of the compression dressing is of fine mesh gauze, which may be coated lightly with a bland ointment or moistened by frequent irrigations with isotonic sodium chloride solution. Dressings of fine mesh gauze impregnated with nitrofurazone (Furacin) have proved especially useful in the management of the burn wound, since the water-soluble base of this bacteriostatic agent insures free drainage of wound exudates but does not cause unfavorable maceration of adjacent tissues.

Unless suspicion of infection suggests the need for earlier examination, the first dressing is not changed for about a week. A general débridement, in which the Brown electric dermatome is used according to the technique of Meeker and Snyder,[13] may then be carried out. Surgical debridement in stages, in connection with later dressings, is somewhat less traumatic and accomplishes the same purpose.

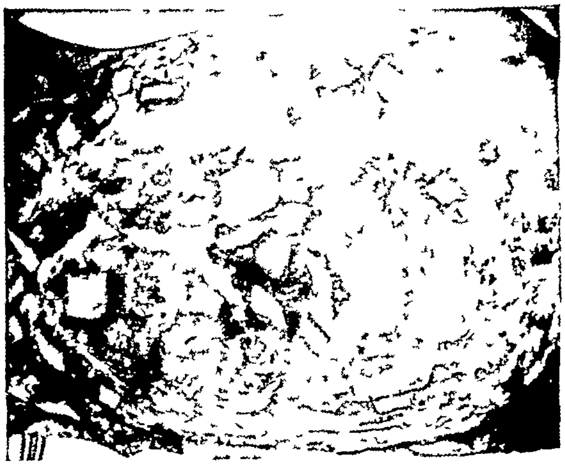

Fig. 2 (case 1).—Wounds of right side of thorax three weeks after third-degree burn. Scattered stamp grafts (Reese dermatome), applied four days earlier at first skin-grafting operation, have taken well; deep skin sloughs are still in process of separation around healthy grafts.

When compression dressings are changed at intervals of several days, the separation of sloughs is favored, and these are gently removed. The use of enzymes to facilitate débridement would seem unnecessary in most cases While a few deep sloughs will separate slowly and tend to hang on, most of the wound is rapidly cleared of devitalized tissue and is soon ready to receive split-thickness skin grafts Skin grafts taken by the Reese dermatome, when left on their rubber backing, are readily cut up into pieces of postage stamp size, or larger, and distributed over denuded areas The free grafts are held in place solely by pressure dressings and may be expected to show good takes' when their rubber backing is removed after four or five days Since the small grafts present many edges for epithelial proliferation, maximal skin coverage is secured by each operative procedure

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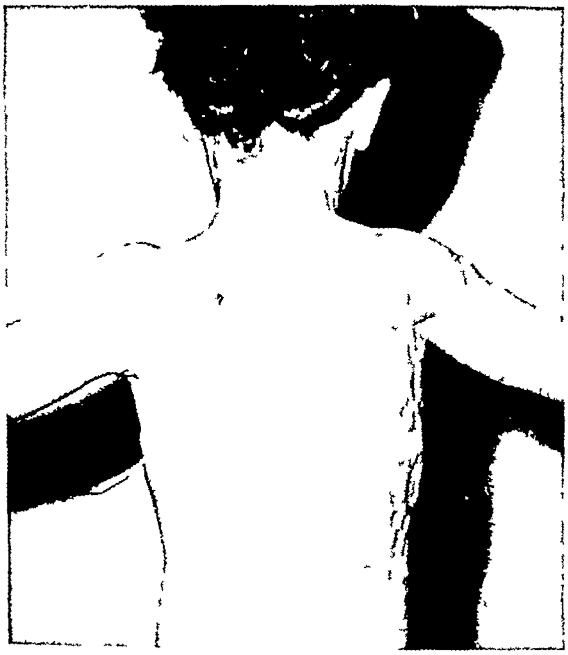

Fig 3 (case 1) —Eight months after burn stamp grafts on back and neck show excellent function

In conjunction with the treatment of the local wound, measures are taken to maintain the patient in a state of good general nutrition If the nourishment taken voluntarily is insufficient, supplementary tube feedings are employed Transfusions of whole blood are given to replace elements lost through exudates, and broad-spectrum antibiotics may be administered to prevent sepsis or the development of infection in tissues imediately involved by the burn

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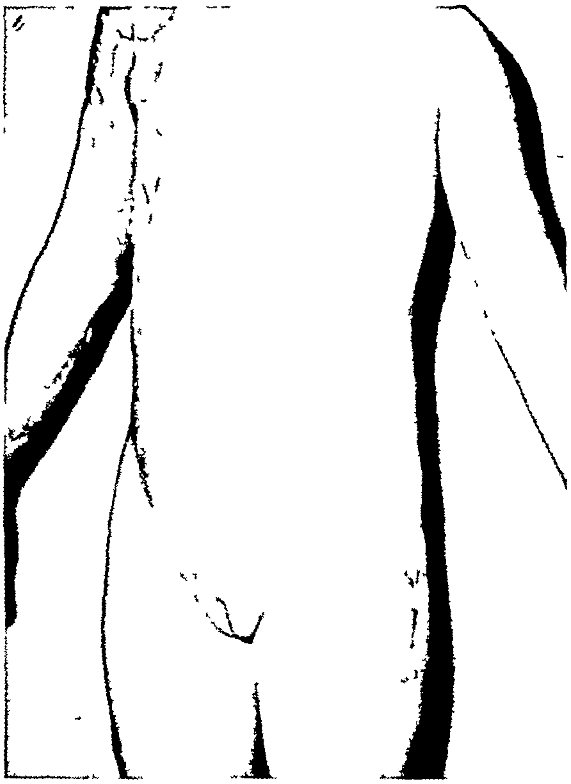

Fig 4 (case 1) —Eight months after burn donor sites on abdomen chest (below left nipple) entire left thigh, and inner surface of right thigh show minimal scarring and may be used again to supply skin for reconstructive purposes All donor sites are covered by ordinary clothing

When feasible, relatively thick sheet-like dermatome grafts should be applied as early as possible in situations in which crippling scar contractures are prone to develop Early and complete skin coverage is very desirable in wounds involving the face, neck, axillas, and groins and the popliteal and antecubital regions If in spite of all preventive efforts, serious joint contractures occur, these may be corrected by secondary operations Final satisfactory results may be secured by further insertions of larger dermatome grafts or by the use of Z-plasties, the shifting of skin flaps, or the free transfer of full-thickness skin grafts The fact that the original dermatome grafts are cut at a depth of 0 01 in or less allows additional "crops of skin to be taken as necessary from the available donor areas

Chronic Burn Wounds

Scattered stamp-like grafts of the patient's own skin may be used to obtain wound closure in the large chronic burns that are occasionally seen in children These patients, who represent serious therapeutic failures, may present themselves months after their thermal injury in a very debilitated condition

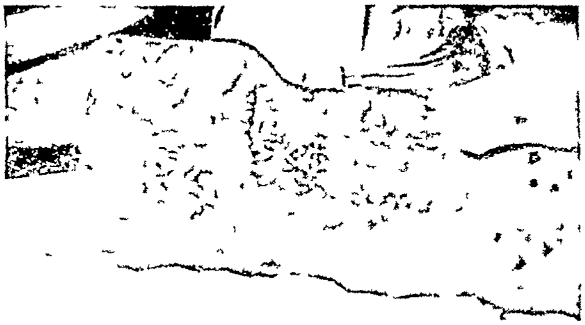

Fig 5 (case 2) —Large granulating wounds of back and left thigh are present seven months after severe burn There is evidence of attempt to obtain healing by pinch grafts Scars in interscapular region indicate donor site for pinch grafts

The wounds in such cases are characterized by unhealthy, soft, exuberant granulations and show the profuse purulent discharges which typify established infections In many cases, spontaneous healing reactions already may have produced scar contractures affecting important joints, and pressure sores are common

An aggressive two-way plan of management is indicated in these patients General measures to improve nutrition and combat infection must be pushed vigorously At the same time, the open wound must be covered with skin at the earliest possible moment

When donor areas are limited, the use of scattered stamp-like dermatome grafts may represent the best solution of the skin-coverage problem It is essential to prepare the chronic open wound carefully, however, before skin grafts are applied The application with pressure, of dressings of fine mesh gauze impregnated with a bland ointment is usually effective in producing in a short time a wound environment which is favorable to skin grafting The edematous granulations flatten out, becoming firm and more vascular, and wound discharges diminish

The application of antiseptics or antibiotic agents locally may hasten the control of infection, but it is believed that the mechanical factors involved in frequent changes of pressure dressings are most important in preparing a wound for skin grafting While the shaving down of granulations tends to improve the base for skin grafting, the blood loss involved in such operative preparation precludes its routine employment in the large wounds of this chronically ill group of patients

It is remarkable how rapidly the child patient shows improvement as skin coverage is provided for a chronic open wound which has resulted after an extensive deep burn Reduction in pain and fever and the control of tissue element depletion lead to improvement in weight, strength, and morale

After wound closure has been effected by the application of stamp-like dermatome grafts, months ma be required for epithelial stabilization and the softening of associated scar tissue Residual functional defects are usually corrected by standard plastic surgica procedures at a late date, when these children are i good general condition and when only ordinary surgical risks are involved

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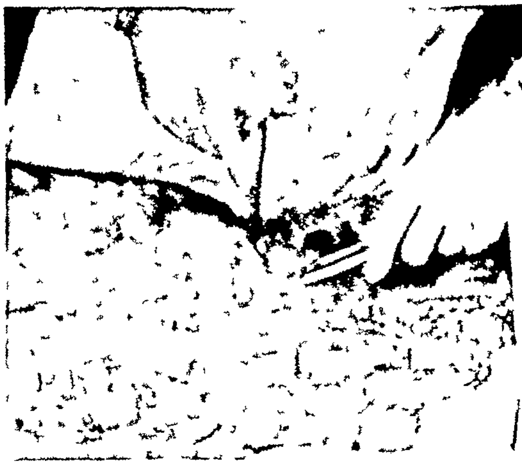

Fig 6 (case 2) —Removal of rubber backing from stam grafts five days after first grafting operation Grafts had bee cut at 0 008 in with the Reese dermatome Good "take" o grafts is evident

Case 2 —The patient, a female, aged 12 years, was first see seven months after a severe gasoline burn At this time, sh showed general depletion, and an established infection i extensive chronic burn wounds Open granulating areas wer present on the left thigh the lower back and buttocks the lower part of the chest on the left and on the abdomen red hypertrophic scars on the left arm marked the sites of spontaneous healing reactions Deep pressure sores had exposed the anterior-superior spine of the ilium on either side Pinch grafts which had been transplanted from the interscapular region to the lower back had resulted in the epithelization of only a few scattered areas

On admission to the hospital the patient showed a marked secondary anemia, with a blood hemoglobin value of 68% The temperature was of septic type with a daily elevation to 102 F (38 9 C) Wound discharges which were initially profuse were controlled by compression dressings a basic layer of fine mesh gauze impregnated with nitrofurazone being applied directly on the granulating surfaces Multiple transfusions were given to correct the hemoglobin deficiency and the patient's fever receded after the administration of antibiotics In the treatment of this patient's penicillin-resistant micrococcic (staphylococcic) infection, chloramphenicol (Chloromycetin) was first used later, chlortetracycline (Aureomycin) proved more effective

Three dressing changes with the patient under general anesthesia at four day intervals were required to prepare the wounds for skin grafting (fig 5) When the preparation of the wounds had been completed three large dermatome grafts were taken from the right thigh cut up into rectangular segments averaging 1 by 1 5 in and distributed generally over the granulating areas of back and buttocks A good take of the free skin transplants occurred (fig 6) Two weeks later similar stamp grafting of the wounds of the left side of the chest abdomen and left thigh was carried out

Because it had seemed advisable to space the grafts of the first two operations widely on the wounds secondary applications of small free grafts were required Complete skin coverage was accomplished by three additional minor skin-grafting procedures in which the right thigh and the right side of the abdomen were used as donor areas and the patient was discharged from the hospital after 10 weeks A year later full thickness skin flaps were shifted to improve the coverage of the anterior-superior iliac spine the sites of the previous pressure sores and keloids developing on the left arm were replaced by thick dermatome grafts

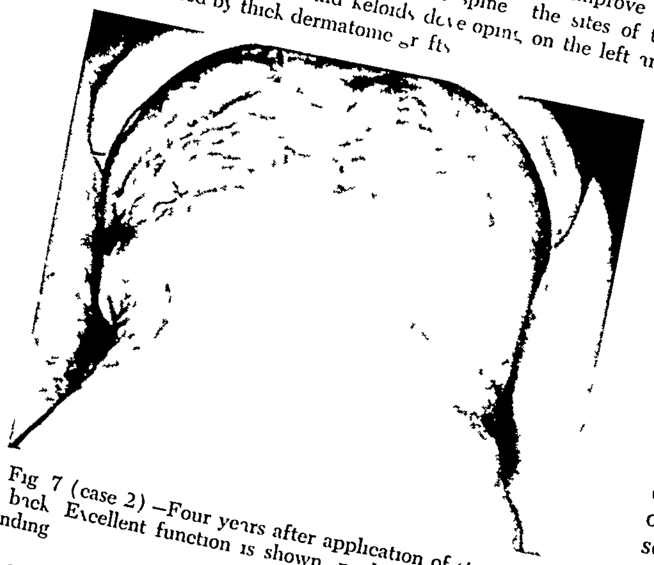

Fig 7 (case 2)—Four years after application of stamp grafts to back Excellent function is shown no limitation of forward bending

After four years this patient shows excellent function of the trunk and lower extremities (fig 7 and 8) The stamp grafts are soft and pliable and scars between the grafts show no tendency to hypertrophy There is minimal scarring of donor sites although successive crops of split-thickness grafts were taken during the course of treatment

Summary

Ideally, a large third-degree burn in a child is managed surgically by complete coverage of the wound by skin grafting as soon as devitalized tissue can be removed and a healthy base established If the skin grafts can be applied in relatively thick sheets, satisfactory function may be anticipated in most locations without further treatment

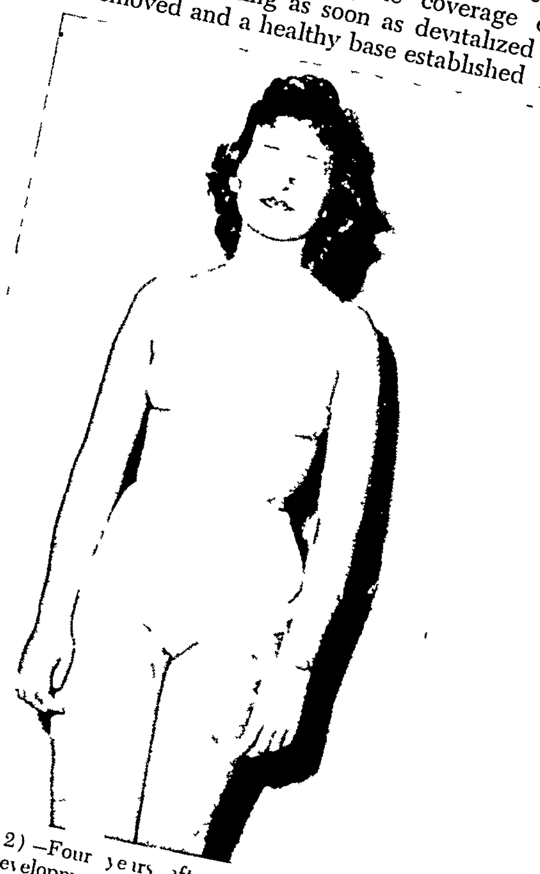

Fig 8 (case 2)—Four years after skin grafting patient shows excellent development and nutrition Grafts on left thigh function well Donor sites on right thigh and trunk were used several times they show minimal scarring however and are concealed by ordinary clothing

Management that represents a compromise with the ideal may be necessitated by the large size of the burn and a corresponding limitation of skin donor areas Brown's use of homografts from cadavers is undoubtedly of great potential value for the emergency handling of mass burn casualties The method has the disadvantage of providing a wound coverage which is temporary in nature The skin milk-shake techniques of Najarian and McCorkle, which have proved effective on an experimental basis, also will probably leave something to be desired in the treatment of individual patients

The use of free stamp-like dermatome grafts is recommended as a surgical expedient to accomplish primary wound closure in very large burns in children The skin coverage obtained by stamp-like grafts is permanent and should prove to be of generally good functional quality If late secondary contractures occur, these may be relieved by elective plastic operations of more conventional type

312 W Idaho St

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TREATMENT OF MILD DEPRESSIONS IN GENERAL OFFICE PRACTICE

Frederick Lemere, M D, Seattle

• Depression manifests itself in both mental and physical symptoms, some of which escape recognition unless the physician is alert The mental symptoms include not only a sad and morbid outlook but also guilt feelings, indecisiveness, loss of interest, and apprehension The physical symptoms include loss of weight and a variety of functional disorders If their nature is understood, the necessary treatment by psychotherapy, electroshock, or analeptics can be given Sedatives and tranquilizers have no beneficial effect on the depression, some aggravate it The danger of suicide must be kept in mind Depression is a most distressing illness, but the prognosis is good The patient must be encouraged by the interest and understanding of the physician There is no greater satisfaction than to see a depressed patient restored from the depths of despair to a normal, happy life

Next to anxiety-tension states, depression is the commonest type of neurosis seen in general practice A depression is primarily a mood disturbance, with many physical concomitants The physical symptoms may so dominate the clinical picture as to mask the true nature of the patient's illness The physician who is not alert to the possibility of an underlying depressive reaction may be led into many a diagnostic and therapeutic blind alley

When a depression is caused by an unhappy experience, it is called an exogenous or reactive depression When it occurs spontaneously, for no apparent or adequate reason, it is termed an endogenous depression and is considered to be a manifestation of the manic-depressive disorders It is characteristic of endogenous depressions that the patient feels worse in the morning and better in the afternoon and evening In my experience, both types of depression occur with about equal frequency, and, of course, many patients present a mixture of exogenous and endogenous factors

Clinical Diagnosis

In many cases, the diagnosis of a depression will be obvious from the patient's own statements and demeanor In many other cases, however, the depressive nature of the illness will not be recognized by either the patient or the doctor unless the latter judiciously questions the patient for the typical symptoms of this disorder These symptoms may be divided into physical and mental

Mental Symptoms—The mental symptoms may be grouped into five divisions 1 Depressed spirits The patient has a morbid, hopeless outlook, with crying spells and suicidal ideas 2 Guilt feelings The patient blames himself for everything and feels inferior, inadequate, and unworthy He thinks himself a failure and broods over imagined or minor mistakes 3 Difficulty in concentrating The patient is absent-minded, cannot make decisions, cannot read, and fears he is losing his mind 4 Loss of interest The patient has no zest or enthusiasm He neglects himself and his work and has to make himself do things 5 Apprehension The patient has exaggerated fears and worries about everything, especially the future The depression may not be the presenting symptom, as is demonstrated by the following cases

Case 1—A 33-year-old housewife wanted to place her children in a home and divorce her husband because of a false feeling of failure as a wife and mother Recognition of the underlying depression and consequent successful treatment prevented a marital tragedy

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From the Department of Psychiatry, University of Washington School of Medicine

Read before the 10th Clinical Meeting of the American Medical Association Seattle Nov 27, 1956

CASE 2—A 46-year old salesman literally worried himself sick over having improperly listed a $5 nonbusiness expense as tax deductible His exaggerated feelings of guilt and hopelessness over the situation made the diagnosis of depression obvious

CASE 3—A 56 year-old housewife, for no apparent reason insisted on selling her home after many happy years and purchased another house She disliked the new house and became critically ill when she was unable to buy back her old home The initial dissatisfaction and subsequent indecision made the diagnosis and treatment of depression possible

Physical Symptoms—The physical symptoms may be grouped into four divisions 1 Loss of appetite and weight Food nauseates the patient He has a coated tongue and suffers from constipation and flatulence He has usually lost 20 or 30 lb (8 or 12 kg) in weight 2 Insomnia The patient's insomnia is often severe and intractable 3 Fatigue The patient, whose fatigue is often worse in the morning, wakes up feeling more tired than when he went to bed Often this feeling of fatigue is greater than that produced by organic illness 4 Nervous tension Nervous tension is especially pronounced in agitated or tension depressions and in multiple psychosomatic complaints

The physical symptoms of depression may be more prominent than the mental symptoms, as illustrated by the following causes

CASE 4—A 26 year-old schoolteacher had her teeth pulled and her facial nerve injected several times before it was recognized that the pain in her face and jaws was due to a depression After an attempted suicide she was given electroshock treatments with relief from the pain and the depression

CASE 5—A 45 year old steelworker was treated for 10 months for sexual impotency urinary frequency and bladder pain without apparent organic basis After it had been elicited that he had feelings of depression with crying spells the true diagnosis was finally established

Treatment

Unfortunately, no drug has been developed that will satisfactorily relieve depression Such stimulants as the amphetamines (dextro amphetamine [Dexedrine] sulfate and methamphetamine [Desoxyn, Methedrine] hydrochloride), pipradrol (Meratron) hydrochloride, and methylphenidate (Ritalin) hydrochloride are the most helpful and often give some measure of relief in mild cases At best, however, they leave much to be desired from the standpoint of sustained adequate elevation of mood

Sedatives and tranquilizers may bring some relief for the often associated tension and anxiety, but they have no effect whatsoever on the depression Reserpine, and perhaps chlorpromazine hydrochloride, may even aggravate the depression Combinations of stimulants and sedatives or tranquilizers, such as Dexamyl (dextro amphetamine and amobarbital) or Thoradex (chlorpromazine and dextro amphetamine), are usually more effective than either alone Sedatives for sleep at night and vitamins and frequent, small, high-calorie feedings for maintenance of nutrition are usually indicated

Because of the relative inadequacy of drugs, the main attack on this disease still has to be psychotherapeutic In the treatment of reactive depressions, the comforting encouragement, the understanding sympathy, and the wise advice of a trusted physician are most helpful This, plus the healing passage of time, will see most patients through their illness Even when nothing can be done about a continued hopeless situation, the opportunity to unburden himself to his doctor often brings the patient moral support and the courage to carry on

Psychotherapy of the spontaneous or endogenous depressions hinges on the fact that depressive attacks are usually self-limited Almost all of these patients will recover within a few months' to a year's time, regardless of the type of treatment used Although some depressed patients will have one or more subsequent attacks during their lifetime, the prognosis for any given attack is excellent The physician must seize on this favorable prognosis to assure the patient that his condition is temporary and that he will get well

Constant, emphatic, and authoritative assurances of eventual recovery must be impressed on the patient, otherwise he may not have the courage to fight through what is perhaps the most painful of all illnesses Suicide is the great risk in depressions, and often the patient's faith in his doctor's promise that he will again be well and happy is the only thing that will keep him from ending his life The physician should warn the relatives about the possibility of suicide, so that such things as guns or large amounts of sedatives may be kept away from the patient The physician should never, of course, write a prescription that would make a lethal amount of a sedative available to a depressed patient unless a relative will take responsibility for handling the medicament Although no one can accurately predict which patients will attempt suicide, the opinions of relatives will often be helpful in this respect Suspected imminence of suicide or a depression lasting longer than nine months are indications for electroshock treatment Electroshock is the most effective therapy available for severe endogenous depressions and may be lifesaving

Most depressed people have an exaggerated sense of guilt The physician should take advantage of this to discuss these feelings as well as any other personal problems that the patient may be prompted to bring up for discussion Because he already feels unworthy, admonitions to the patient that he could get well if he wanted to and exhortations to increased activity only serve to drive him deeper into his depression Continued patient encouragement is the best help anyone can give a depressed person

Because of the morbid thoughts and the difficulty in concentrating or making decisions, many depressed patients fear that they will become insane They can be reassured on this score by the explanation that this illness is an emotional and not a mental disorder and that they will not lose control of their faculties

It should also be explained to the patient that recovery from a depression is an up-and-down proposition rather than a smoothly progressive convalescence such as usually occurs with organic disease More and more "good" days and fewer and fewer "bad" days are experienced, until finally all the days are "good" days again Unless a patient understands this, he is apt to feel he has slipped back to where he started from when he has a "bad" day Because of this, he may lose heart and his progress be delayed

Many patients will ask how long they are going to be ill Inasmuch as it is impossible to foretell with any certainty the duration of a depression, it is best not to commit oneself on this I tell most patients that no one can say just how long they will be ill but that with nervous exhaustion it usually takes several months before the nervous system can be built up to the point where they will feel like their normal selves again

Conclusions

Although depression is one of the most distressing illnesses that a doctor is called upon to treat, it may be one of the most rewarding Because the illness is usually self-limiting, almost all depressed patients will eventually recover If the doctor has been patient and understanding enough to see the patient through his ordeal he, the doctor, will get the credit for the cure There can be no more grateful patient or relatives, nor is there any greater satisfaction than to see a patient restored from the depths of despair to a normal happy life Most people who are subject to depression are, when well, some of the finest, warmest, and most conscientious and productive people in the community

308 Medical and Dental Bldg (1)

BRONCHOGRAPHY IN THE DIAGNOSIS OF PEDIATRIC PROBLEMS

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• *Exact and early diagnosis of bronchopulmonary abnormalities in children is important because some conditions formerly irremediable can now be corrected surgically Tracheoesophageal fistula, for example, can and should be repaired before chronic pneumonitis develops Diagnosis of tracheoesphageal fistula without esophageal atresia by endoscopic means alone is difficult, but it is rendered easier and more precise by combining bronchoscopy and bronchography under general anesthesia in the technique here outlined In bronchography for other conditions, iodized oil is injected by catheter through an endotracheal tube under fluoroscopic control, and each lobe is filled as the patient is turned into various positions After the desired roentgenograms have been obtained, the oil is removed by aspiration The causation of stridor, persistent atelectasis, and other abnormalities may thus be explained Recent advances in intrathoracic surgery, especially about the aortic arch, have made it possible to eradicate the cause of the symptoms in many such cases*

In recent years bronchography has become increasingly useful in the solution of many perplexing bronchopulmonary problems of infancy and childhood Early, accurate diagnosis is of the greatest importance if the patient is to receive maximum benefit from the progress which has taken place in the field of pediatric thoracic and cardiovascular surgery

The clinical symptoms which should alert the physician to the probable need for a more thorough chest examination than can be accomplished by the stethoscope and routine roentgenographic studies alone are (1) chronic pulmonary changes which can be demonstrated by the usual roentgenographic studies, (2) unexplained chronic cough, whether productive or nonproductive, (3) stridor, which is often erroneously presumed to be laryngeal in origin, (4) recurring infection in the same area of the lung, (5) persistent or recurring wheezing emanating from the same area of the lung, and (6) hemoptysis (not, in our experience, commonly observed in childhood, but, when seen, usually associated with severe pulmonary pathology)

The medical management of chronic pulmonary infection is greatly facilitated by bronchography It not only assists in the establishment of a correct diagnosis and indicates the extent of the disease but also records the clinical courses of such patients to determine the efficacy of treatment by the different antibiotic agents

Bronchiectasis

Bronchiectasis has always been considered a serious disease in childhood yet today many patients are being treated successfully by medical therapy alone Before such treatment is undertaken, an accurate evaluation of the condition of the tracheobronchial tree should be carried out In our opinion, in addition to the usual roentgenographic studies, this evaluation should include careful bronchoscopy, bacteriological and fungus studies of the pulmonary secretions, with sensitivity tests, and bronchography

While all of the factors in the etiology of bronchiectasis are not known, most observers are agreed that the pathological changes noted are chiefly the result of prolonged bronchial obstruction plus infection In childhood, bronchiectasis is often preceded or accompanied by a number of conditions in which these factors are prominent features Among the more common conditions are unresolved pneumonia (fig 1), persistent atelectasis (particularly that involving the middle lobe), pertussis, recurrent attacks of bronchitis and sinusitis, and severe asthma Less common causes, in our experience, have been mucoviscidosis (fibrocystic disease of the pancreas) (fig 2 *A*), foreign-body aspiration (fig 2 *B*), and stenosis of a bronchus In such

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Read before the Section on Laryngology, Otology and Rhinology at the 104th Annual Meeting of the American Medical Association, Atlantic City, N J June 8, 1955

From the departments of otolaryngology Childrens' Medical Center and Harvard Medical School instances, however, the bronchiectasis may be very severe Anomalies of the tracheobronchial tree occur with much greater frequency than has been generally suspected in the past[1] We have observed bronchiectasis associated with various anomalies, including those of the right upper lobe bronchus where the bronchus arises from the trachea just above the bifurcation and is often twisted or partially stenosed Congenital stenosis of a normally situated bronchus has been noted on several occasions Weakness, severe malformation, or even absence of bronchial cartilages have been observed in the main bronchi of young patients with bronchiectasis Thus, whenever the factors of infection and obstruction are found as a chronic condition, bronchiectasis is commonly seen

Agenesis of the Lung

An infant or young child who presents signs of dulness, whose breath sounds are absent, and who may or may not have displacement of the mediastinum recognized clinically or roentgenographically may be suspected of having unresolved pneumonia or atelectasis On occasions, such findings may indicate agenesis of the lung, and in such instances bronchography is of great assistance in establishing a correct diagnosis[1] In most cases this condition is relatively asymptomatic, so that the pediatrician should be aware of the possibility of such an anomaly when he is confronted with an abnormality of the lung field that is not completely satisfactorily explained otherwise

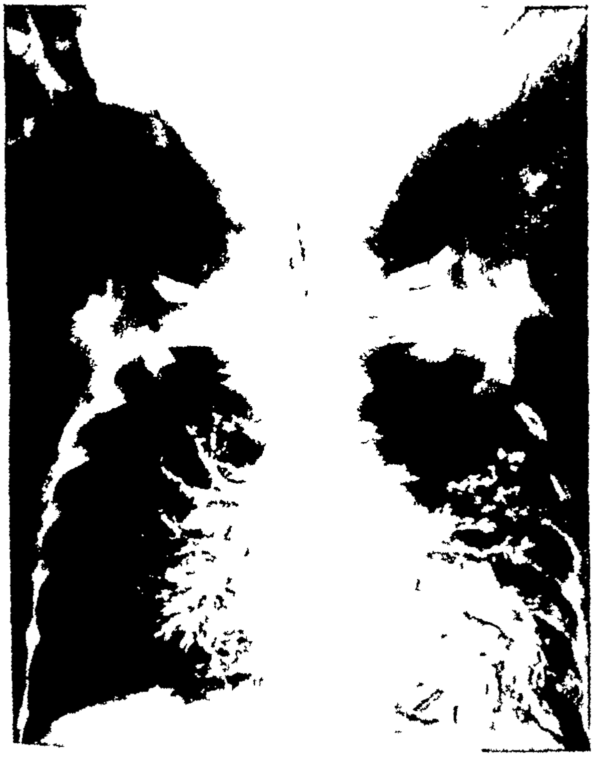

Fig 1—Bronchiectasis of left lung after unresolved pneumonia (anteroposterior view) Marked saccular dilatation is apparent in lower lobe

Other multiple congenital defects are usually associated with agenesis of the lung, and they may serve to arouse suspicion of the proper diagnosis

Agenesis of the lung may be of three types (1) true aplasia, with no trace of lung, bronchus, or vascular supply, (2) tiny outpocketing, or bud of the trachea, with no lung tissue, and (3) extreme hypoplasia of the bronchus, with no true lung tissue (fig 3)

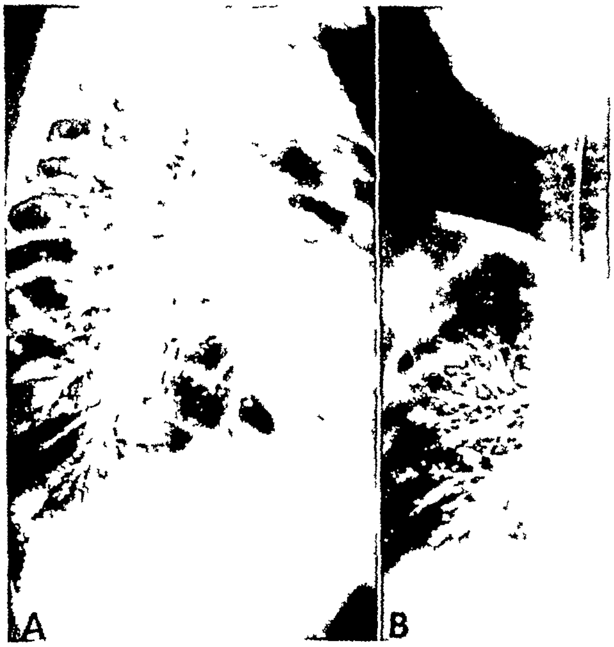

Fig 2—*A*, generalized bronchiectasis associated with mucoviscidosis (oblique view with right bronchus injected) *B*, bronchiectasis of right lower lobe after aspiration of timothy grass—top (anteroposterior view)

Tracheoesophageal Fistula

Tracheoesophageal fistula is an important congenital anomaly that is frequently observed at large pediatric centers, yet it may be difficult to recognize In most cases, the fistula is associated with atresia of the esophagus, and difficulties will be obvious from the first attempt at feeding The diagnosis should be made promptly However, in patients where the esophagus is patent, a tracheoesophageal fistula may give no symptoms except recurrent attacks of pneumonitis of the aspiration type[2] Choking on liquids rather than solid food, in a person with or without persistent loose cough, may arouse suspicion, but usually it is not until later in infancy or childhood that the correct diagnosis is made In such cases, bronchography may be of great help in delineating the fistula if it has not already been demonstrated fluoroscopically by means of swallowing of a contrast medium It is very difficult to visualize such a fistula endoscopically, even with the Broyles telescope Early diagnosis is important, so that the fistula can be repaired surgically before the development of chronic pneumonitis with resultant fibrosis or bronchiectasis (fig 4)

Stridor

Stridor is an extremely common condition in infancy, and in the past the larynx was regarded as the usual site of its origin. Now we know it is by no means the only one. Stridor must be regarded as merely a symptom, and its cause must be adequately determined in each case. In the presence of a normal larynx the true cause of the stridor may be found only by careful evaluation of the tracheobronchial tree. Bronchoscopic examination may show a true stenosis of the trachea, which is indistinguishable roentgenographically from an apparent narrowing due to a glottic obstruction. In the latter case, the narrowing is present only during the phase of inspiration and will disappear when the glottis is held open by an anterior-commissure laryngoscope. Thus it is a transient physiological obstruction and not due to a fixed anatomic narrowing. Abnormalities of the epiglottis or of the arytenoepiglottic folds are usually responsible for this condition. If the cartilaginous framework of the trachea is deficient, local collapse of a segment of the trachea or bronchus will occur during each respiratory cycle. Stridor, dyspnea, or even cyanosis may result, along with intercostal, suprasternal, and infrasternal retraction. This may be seen endoscopically and recorded graphically by serial tracheograms or bronchograms. By the use of special equipment, 15 to 20 films may be exposed in rapid succession during several respiratory cycles. The abnormal area can be seen to change its caliber if there is a local deficiency of the tracheal cartilages.

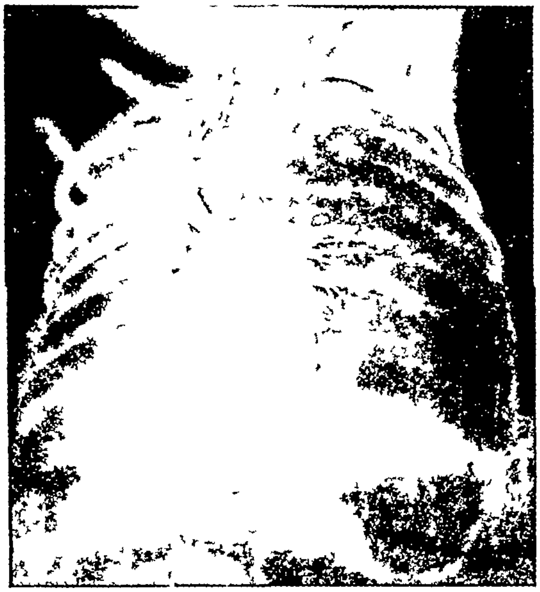

Fig 3.—Agenesis of right lung (anteroposterior view)

By far, the commonest extralaryngeal causes of stridor are to be found, however, in patients who have a compression of the trachea by an abnormal aortic arch, with or without malformation of the great vessels.[3] The earliest and most severe symptoms of tracheal obstruction and stridor are usually seen in infants who have a double aortic arch, the commonest type of vascular ring. In such cases, both the right and left fourth embryonic arches persist and encircle the trachea and esophagus. This usually produces symptoms of a distressing type before the infant is 6 months of age. These babies have severe respiratory embarrassment, stridor which is both inspiratory and expiratory in phase, dyspnea, wheezing, retractions, and attacks of cyanosis. Dysphagia is common, or more often merely a 'hesitation' in swallowing is noted. Bronchoscopic examination of such infants reveals a compression of the lower portion of the trachea at the level of the third or fourth thoracic vertebra, and, as visualized by barium studies, the esophagus is also constricted at this same level (fig 5). In the absence of a mediastinal mass, such a picture of constriction of both the trachea and esophagus at the same level is pathognomonic of some type of vascular ring. Today, successful division of such a ring can be carried out by a competent thoracic surgeon, giving complete relief of the infant's symptoms.[4] The diagnosis, however, must be made as early as possible, before permanent damage is done to the already constricted and badly deformed cartilages.

Similar symptoms may be produced by another type of ring, due to a right-sided aortic arch with a constricting ligamentum arteriosum. Such patients will usually live for 12 to 18 months before symptoms become apparent. The time when symptoms appear, however, will depend on the length and tightness of the ligamentum. The ligamentum is the remains of the ductus arteriosus, which connects the pulmonary ar-

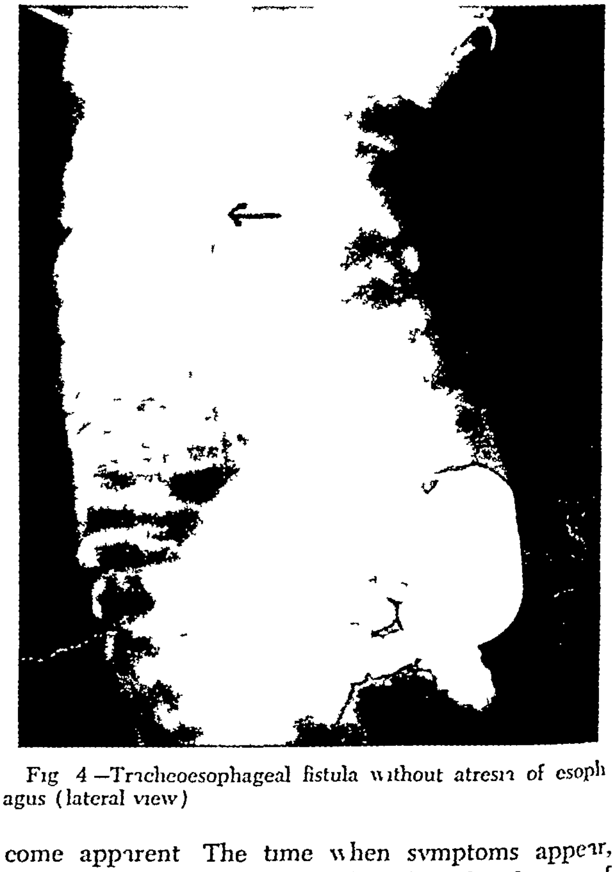

Fig 4.—Tracheoesophageal fistula without atresia of esophagus (lateral view)

tery anteriorly to the first portion of the aorta posteriorly Therefore, if the arch of the aorta is placed on the right side, the ductus arteriosus (or ligamentum) must of necessity curve around the left side of the trachea and esophagus and, in most instances, posterior to it This completes a constricting ring In such cases the left subclavian artery may run posterior to the esophagus and cause additional compression Anomalies of the innominate artery or left common carotid artery may cause an anterior compression of the tracheal wall with resultant stridor and signs of obstruction *Here, however, there are no esophageal* symptoms, and barium studies of the esophagus show an adequate lumen throughout Such conditions will result if the innominate artery arises too far to the left *on the aortic arch or if the left common carotid arises* too far to the right, thereby crossing the trachea anteriorly Each of these defects can be corrected surgically and the compression relieved

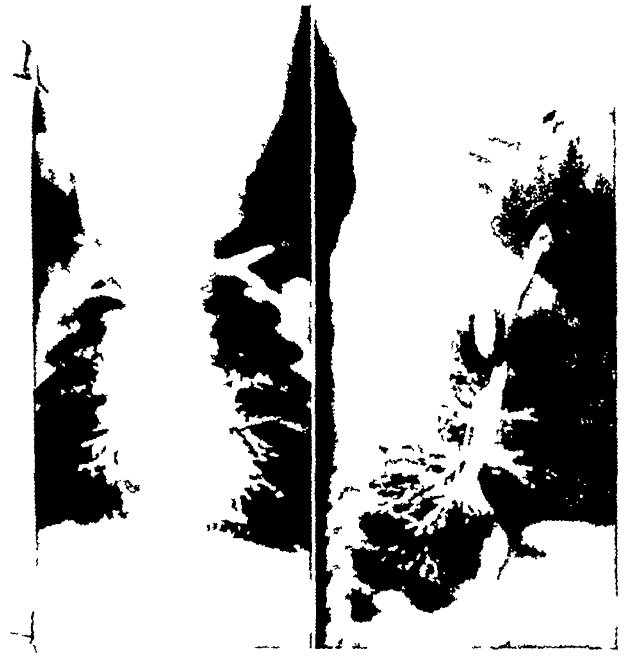

Fig 5 —Double aortic arch *Left*, anteroposterior view Constriction of both trachea and esophagus at same level is shown *Right*, lateral view showing pinchcock effect of compression ring

Technique

At the Children s Medical Center in Boston most of our tracheographic and bronchographic studies are performed with the patient under general anesthesia This technique has been described in more detail elsewhere [5] Premedication with pentobarbital (Nembutal) and atropine is followed by the administration of vinyl ether (Vinethene) and ether anesthesia, using the open mask method On occasion, in older children, basal anesthesia with rectally given tribromoethanol (Avertin) is used *instead of pentobarbital premedication* A complete bronchoscopic examination is made, during which secretions are aspirated into a Lukens tube, for bacteriological and fungus cultures Sensitivity tests against the various antibiotic agents *are always carried* out After completion of the bronchoscopic procedure, an endotracheal tube is inserted Under fluoroscopic control, iodized oil (Lipiodol) is injected via a polyethylene catheter inserted through the endotracheal tube Each lobe *is filled under direct vision, as the* patient is turned into various positions When satisfactory filling has been completed, five routine views are obtained (namely, an anteroposterior, a lateral, and three oblique views) The oil is then aspirated and the *endotracheal tube removed* The amount of oil employed varies with the size of the patient From 1 to 2 cc is used in a small infant when it is desired to outline only the trachea It may be necessary to use *15 to 20 cc in an older child with bronchiectasis The patient should be kept at just the right stage of anesthesia*, so that the cough reflex will be suppressed for three or four minutes to allow the films to be completed Teamwork, involving the anesthesiologist, the radiologist and his technician, and the endoscopist, is essential for satisfactory results

Summary

Bronchographic studies are necessary for accurate diagnosis of many bronchopulmonary problems in infants and children Such studies are especially helpful in determining the presence and degree of bronchiectasis and are also of great value in recording and *evaluating progress during medical treatment* Bronchiectasis is usually associated with a number of conditions in which the factors of infection and obstruction are the most prominent features The possibilities of agenesis of the lung and tracheoesophageal fistula without esophageal atresia should be considered in patients with abnormal pulmonary findings Stridor, usually considered as emanating from the larynx alone, may be due to stenosis of the trachea, to external compression of the trachea, or to stenosis of a main bronchus It is especially severe in patients who have anomalies of the aortic arch or great vessels that produce external tracheal compression This type of anomaly is now amenable to surgery

300 Longwood Ave (15) (Dr Ferguson)

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MECHANISM OF INFLAMMATION AS RELATED TO SURGICAL MANAGEMENT AND GENERAL RESISTANCE

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• Three cases involving elderly patients are described to illustrate the effectiveness of orally administered corticoids in increasing general resistance to recurrent infections and to surgical shock An 85 year old man who had gone into profound shock after catheterization subsequently underwent the first and second stages of suprapubic prostatectomy without reactions with the help of maintenance doses of cortisone A 78 year old man went into profound shock after the third of a series of operations, but was maintained on doses of hydrocortisone not exceeding 50 mg per day until death resulted from the rupture of an aortic aneurysm A 50 year old woman had been hospitalized repeatedly for recurring pyelonephritis unaffected by antibiotics and chemotherapy, recurrences stopped when cortisone was administered in doses of 2 5 mg daily by mouth Antibiotics and chemotherapy should always be used along with corticoid medication, and their use should be continued for a time after corticoid medication has been stopped It is important to adjust the dosage of corticoids so as to avoid the gastrointestinal necrosis, delayed healing, and upset of electrolyte balance that have been reported after the use of large doses

Advanced knowledge in the field of homeostasis as related to general resistance, shock, the general adaptation syndrome and the mechanism of inflammation has resulted in the saving of many lives which would otherwise have been lost The problem of general resistance as related to frequently recurring pyelonephritis and cystitis is another field in which basic biochemical factors related to inflammation afford principles which may be constructively utilized

Homeostasis is defined by Cannon as "Maintenance of steady states by coordinated physiological processes" [1] The maintenance of steady states involves the environment and the sum total influence of individual cell metabolism Shock, although very complex, exerts its chief destructive effects through anoxia and will be discussed only in connection with the maintenance of satisfactory blood pressure levels The general adaptation syndrome, as described by Selye,[2] has provided one of the most satisfactory explanatory schemes of clinical phenomena that anyone has presented in recent times Exhaustion is frequently synonymous with death The contraction of the heart muscle is supposed to depend on the presence of a lipid steroid chemical substance related chemically to toad venom [3]

Clinical Management

The first International Symposium on the Mechanism of Inflammation was held in conjunction with the 19th International Physiological Congress in September, 1953 at Montreal Canada Instead of extensive reference to the transaction of this conference, a few of the pertinent observations which have clinical management potentialities will be presented

Ungar [4] presented a schematic representation involving the fibrinolytic mechanism which indicates that histamine elaborated in a stage of proteolysis produces (1) vasodilation, (2) stasis, and (3) increased vascular permeability This presentation, as well as the contributions of Carson and Campbell,[5] Duran-Reynals,[6] Judd and Henderson,[7] Kindall and Nickels,[8] Mayer and Kull [9] Rich and Lewis,[10] and me,[11] provides the rationale behind the clinical use of antihistamines in acute infectious inflammatory lesions

Menkin [12] studied the effect of anti-inflammatory substances on isolated cellular systems He used the ova of the sea urchin Keeping them in sea water with a small amount of cortisone for 15 minutes and then fertilizing them brought about cell division Variations in incidence of cleavage were used as an indication of variations in cell activity Cortisone hydrocortisone, and corticotropin produced a depressing effect Somatotropic hormone did not

Taubenhaus [13] observed that somatotropic hormone, thyroxin and desoxycorticosterone stimulated granulation tissue and that cortisone, hydrocortisone, estrogen, testosterone, and methylandrostenediol inhibited granulation tissue He also observed that methantheline bromide (Banthine) and Dibenamine (N, N-dibenzyl beta-chloroethylamine hydrochloride) have an inhibiting effect on granulation tissue similar to some of the corticosteroids

There are many other observations in the "Mechanism of Inflammation" for which space will not permit further reference I suggest that a reading of this book is most rewarding

Report of Cases

In the field of general resistance we are confronted with the problem of how to make infrequent the incidence of such recurring acute infectious entities as pyelonephritis and cystitis

We know very little about resistance except that it is considered to be low after exhaustion, emotional shock, chilling, and wetting and when the hemoglobin level or red blood cell count is low The possible relationship of steroids to general resistance is important and will be referred to later

Three clinical cases illustrative of general resistance follow

Case 1 —An 85 year-old man had experienced recurring pyuria with fever, frequency, urgency, and varying amounts of residual urine for more than a year and had refused any surgical intervention On May 30 1955 he gave a history of recent hematuria chills pains in the penis, and inability to void He

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Read before the Section on Urology at the 105th Annual Meeting of the American Medical Association, Chicago June 12 1956 was hospitalized and catheterization produced 160 cc of bloody infected urine His temperature rose to 105 F (40 6 C) in less than an hour The blood pressure dropped to 70 mm Hg He was in profound shock

He was started immediately on therapy with levarterenol (Levophed) bitartrate in distilled water, in addition, 500 mg of tetracycline (Achromycin) and 50 mg of hydrocortisone were given intravenously The levarterenol administration was continued periodically for three days because his blood pressure would not stay up Cortisone was given orally 25 mg twice a day until June 8 1955 on which day suprapubic cystostomy was performed without incident On June 14 a second stage prostatectomy was carried out The patient had no reaction to the operation

He left the hospital on the 10th postoperative day During his convalescence he was at first given 25 mg of cortisone a day and then was placed on maintenance therapy with 10 mg a day when he left the hospital the maintenance dosage was reduced to 5 mg a day In conjunction with this he was given antibiotics continuously and very important they were continued after the cortisone was withdrawn[14]

Case 2—A 78 year old poor risk male had had a very narrow escape from death after biliary surgery He had developed an obstruction in the neck of the bladder and an indwelling catheter was necessary during the three month postoperative period He was to undergo a suprapubic prostatectomy whenever he was considered sufficiently recovered to do so However the incision for such surgery revealed a peculiar hemorrhagic blood factor which made it unwise to proceed Blood studies failed to disclose the reason for this bleeding problem Vitamin B_1 in doses of 100 mcg daily was given for the week after the cystostomy on the basis of previous observations that such therapy seems to be helpful in certain bleeding problems

A second stage suprapubic prostatectomy was carried out one week after the cystostomy and no untoward incident occurred during surgery The patient did have an unusually large gland and because of his previous bleeding experience the capsule was packed with iodoform gauze for hemostasis He got along very satisfactorily from the prostatectomy However after the removal of the packing on the fifth postoperative day his blood pressure went down to practically nothing and he suffered profound shock and had to be immediately resuscitated with oxygen and intravenous doses of levarterenol He was given blood transfusions 50 mg of hydrocortisone and intravenous doses of tetracycline and penicillin He was given 25 mg of diphenhydramine (Benadryl) hydrochloride by hypodermic injection

After this initial episode which demanded levarterenol for four days his electrolytic balance was continuously all right and he was on maintenance therapy with antibiotics vitamins and blood given intravenously He was critically ill for three weeks with one week of total unconsciousness On numerous occasions the nurses felt that it was not possible for him to survive another hour He regained consciousness however and appeared to be well on the road to recovery when an aortic aneurysm ruptured and resulted in instant death An autopsy demonstrated that he had had multiple miliary renal abscesses bilaterally, which were in various stages of resolution The dosage of hydrocortisone had not exceeded 50 mg per day nor more than 25 mg of diphenhydramine when that was given The last week the dose had been tapered off to 25 mg of cortisone orally

Case 3—A 50 year old woman was often hospitalized for prolonged frequently recurring pyelonephritis She was seen in consultation in the hospital in an acute pyelonephritic attack in September, 1944 From 1944 until April 1953 she was hospitalized with recurrence of these acute, febrile bilateral pyelonephritis and cystitic problems because of the inability to control the infection with the customary supportive chemotherapeutic vitamin and antibiotic therapy

Upon discharge on April 28, 1953, she was put on therapy with cortisone, 2 5 mg orally daily On May 15, 1953, she reported that she was feeling fine and gaining weight By June 15 1953 she had gained 5 lb (2 3 kg) From that date until February, 1956 at which time she moved to California, she took cortisone 2 5 mg per day, whenever she felt herself "slipping She would take it from periods of anywhere from one week to six weeks at a time

Use of Antihistamines and Corticoids

There are certain aspects concerning the use of antihistamines and corticoids that should be discussed Very important is the fact that antibiotics or chemotherapeutic agents should always be used along with corticoids[13] This is not important in the administration of antihistamines[11a]

The dosage to be used is very important, because much larger doses than are necessary or advisable are very frequently used and because small doses, meaning doses from 1 to 25 mg of any of the corticoids, do not influence the electrolytic balance to any appreciable degree There has been considerable comment on the production of perforating gastrointestinal ulcers after the administration of the corticoids These accidents do occur but they occur in the patients who are given large doses of from 50 to 300 mg per day

There is also the criticism of interference with healing In the surgical procedures carried out for bilateral adrenalectomy, really large doses of cortisone are given preoperatively and postoperatively with no difficulty in wound healing There should be no reason for anyone's not realizing that large dosages, that is, over 50 mg per day, would almost certainly upset homeostasis and possibly unfavorably so In addition, it is noteworthy that 1 mg of estradioldipropionate produced a most spectacular clinical response the first time it was used in the treatment of advanced metastatic carcinoma[15] It is unreasonable to feel that 5 mg of any corticoid would seriously upset homeostatic balances

In regard to antihistamines, tripelennamine (Pyribenzamine) hydrochloride has been used in doses of 50 mg one to three times a day Diphenhydramine is given in 25 mg doses orally or by injection from one to three times a day

It is noteworthy that many anesthetists use diphenhydramine and hydrocortisone by injection[16] both during the operation and in the early postoperative recovery period For patients who have frequently recurring infectious inflammatory lesions of the urinary tract, doses of the corticoids vary anywhere from 1 mg of prednisolone to 2 5 mg of cortisone without any untoward reaction The reports that one receives of the patients own observations of the influence of these small doses of cortisone are very impressive Recently I saw a patient who had been on therapy with 1 mg of prednisolone for a month after dismissal from the hospital for an acute pyelonephritis and cystitis attack She stated that for the whole month that she took the prednisolone she felt fine and that when the drug was withdrawn she did not feel nearly so well and that, moreover, two months later she had mild recurrence of cystitis

Summary

There are available spectacularly effective pharmaceutical agents which successfully prevent death in conditions of severe shock, acute infectious inflammatory lesions, and general resistance deficiencies Whenever corticoids are administered, antibiotics or chemotherapeutic agents should be administered along with them and their administration continued after the

Fifteen days postoperatively, the patient no longer had hypesthesia in her left hand Five months later she had more strength in her hand, and there was less atrophy of the thenar muscles A little more than one year postoperatively, atrophy of the thenar muscles had disappeared and there was a complete return of normal strength in the left thumb It is now almost two years since this patient's operation, and she has had no further trouble with her hand

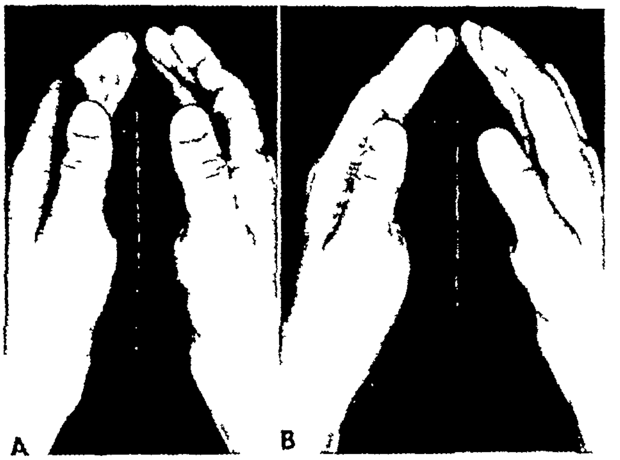

Fig 3 (case 2) —A, lateral view of hands, showing bilateral atrophy of thenar muscles more pronounced in right hand B, lateral view of both hands three months after decompression of median nerve at left wrist, showing return to normal of thenar muscles in left hand

Case 2 —A 38 year-old woman was first examined here on July 6 1954 She had noticed slight pain in the thumb and index and middle fingers of her right hand about 10 years previously There was no history of injury Three years before examination, she developed numbness in the median distribution of her right hand, together with a slight flexion deformity of all fingers She consulted a neurosurgeon who made a diagnosis of compression neuropathy of the median nerve in the carpal tunnel In September, 1951, the right wrist was operated on, with section of the transverse carpal ligament and neurolysis of the median nerve The flexion contracture of the fingers and some of the pain in her hand were relieved after this operation but the numbness continued to increase in severity, and she still had much pain in her hand at night During the year before examination here there had been a gradual atrophy of the thenar muscles In March 1954, four months before examination, she first noticed pain and numbness in the median distribution of the left hand These symptoms had gradually increased in severity so that she had great difficulty in buttoning her clothes or doing any sort of work with her hands During the two months before examination, she had observed a gradual wasting of the thenar muscles accompanied by extreme weakness in her thumb She frequently had cut and burned her fingers without realizing it She had noticed a slight swelling on the volar aspect of each wrist for the past several months

Examination of the right hand revealed extreme hypesthesia in the median distribution with pronounced atrophy of all the thenar muscles supplied by the median nerve Grip in the hand was weak The wrist flexion test was negative and Tinel's sign was weakly present over the median nerve at the wrist There was a soft nontender, subcutaneous swelling over the flexor tendons just proximal to the wrist joint There was a well-healed longitudinal operative scar 4 5 cm in length, extending across the wrist joint and volar aspect of the forearm Results of examination of the left hand were essentially the same as those in the right except that the hypesthesia in the median distribution and the thenar atrophy were not quite as pronounced (fig 3A)

On Aug 7 1954 the left wrist was operated upon The flexor synovialis was found to be greatly hypertrophic and densely adherent to the flexor tendons There was a bulbous swelling of the median nerve proximal to the edge of the transverse carpal ligament, and the nerve was severely compressed within the carpal tunnel The transverse carpal ligament was sectioned, and the major portion of the thickened flexor synovialis was excised The median nerve was adequately decompressed by this procedure Ten days postoperatively, the patient noticed some return of sensation in the median distribution of her hand She no longer had any pain in her hand Eleven weeks postoperatively, she lacked sensation only in the tips of the index and middle fingers and the thenar muscle atrophy was disappearing

The patient requested that another operation be performed on her right wrist On Dec 9, 1954, a 7-cm incision was made transversely across the wrist for a short distance and then continued down the center of the forearm, excising the previous incisional scar The palmaris longus tendon was found to be pressing firmly down into the substance of the median nerve, this tendon was excised The median nerve was found to be flattened and moderately indurated The normal median nerve at a point 6 cm from the distal flexor crease at the wrist measured 6 mm in diameter The nerve then ballooned out to 12 mm in diameter as it passed into the carpal tunnel (fig 4) The nerve was also compressed in the carpal tunnel The flexor synovialis was thickened and had to be separated by sharp dissection from the flexor tendons It was necessary to excise the major portion of this flexor synovialis to decompress the median nerve Three weeks after the second operation the patient noticed slight improvement in sensation in her right hand, and she also experienced some twitching in the paralyzed thumb muscles Six months later there was further return of sensation in the hand but no evidence of improvement in the thenar atrophy

At the present time, the patient has normal sensation in her left hand and normal power in the thumb muscles Sensation is diminished in the tips of the thumb and index and middle fingers of the right hand and there still is moderate atrophy of the thenar muscles (fig 3B) Biopsy specimens of the flexor synovialis from each wrist revealed a microscopic picture compatible with rheumatoid synovitis The synovial lining cells were hypertrophic and there were focal collections of lymphocytes (fig 5)

Case 3 —A 55 year-old man was first examined here on Nov 30, 1954 For three years prior to examination the patient had recurrent attacks of severe pain and tingling in the median distribution of his right hand There was no history of any injury to the wrist, but each attack seemed to follow excessive use of his hand In the past year he had observed some wasting away of the thenar muscles and had noticed that the paresthesias in his hand became more severe when he was writing Between the acute attacks there remained some hypesthesia in the median distribution in the hand

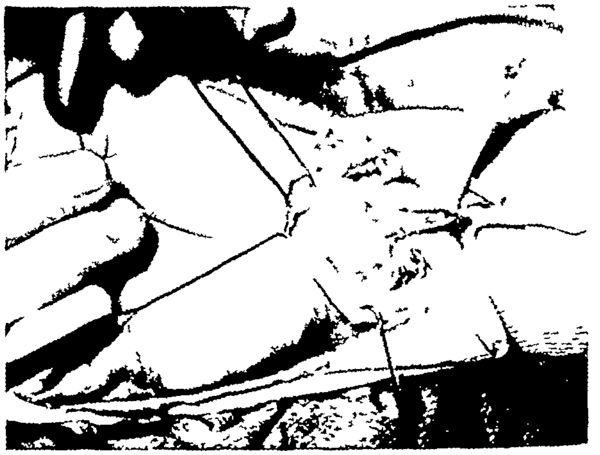

Fig 4 (case 2) —Photograph showing findings at operation on right wrist Palmaris longus tendon has been sectioned at its insertion and turned backward onto forearm Rubber drain has been passed beneath normal median nerve in forearm Note how median nerve is swollen proximal to transverse carpal ligament due to pronounced hypertrophy of underlying flexor synovialis

Examination revealed that Tinel's sign over the median nerve at the wrist was present, a positive wrist flexion test, mild hypesthesia in the median distribution distal to the wrist joint and moderate thenar atrophy, involving principally the short flexor and short abductor muscles A roentgenogram of the wrist revealed no abnormality

On Dec 30, 1951, the transverse carpal ligament was sectioned through a transverse incision in the distal flexion crease at the wrist There was a definite bulbous swelling of the nerve proximal to the edge of the transverse carpal ligament The palmaris longus tendon was excised because it appeared to have been exerting considerable pressure on the underlying median nerve The flexor synovialis was moderately thickened A biopsy of this synovialis revealed evidence of chronic nonspecific inflammation

The day after operation, the patient said that he no longer had the thorns in the end of the fingers that he had had prior to the operation especially at night When the patient was last seen in May, 1956, he had no symptoms referable to either hand and the thenar atrophy had disappeared

Diagnosis

The diagnosis of spontaneous compression of the median nerve in the carpal tunnel must be considered when a patient complains of hypesthesia or paresthesias in the median distribution or when there is isolated paralysis of the thenar muscles supplied by the median nerve The history is usually that of a progressive weakness and clumsiness in the hands, associated with numbness and tingling in the median distribution distal to the wrist joint Although occasionally there may be some aching or pain radiating up the forearm and even up to the shoulder, there never are any objective sensory changes proximal to the wrist joint

In none of the 71 patients in this series was there a history of injury We have seen two cases in which the carpal tunnel syndrome developed many years after fractures about the wrist, these cases of tardy median palsy are not included in this series

In patients with bilateral compression neuropathy, the symptoms were more severe in the dominant hand Strenuous use of the hand always seemed to aggravate the pain and numbness in the median distribution, although the patient sometimes was not aware of this until after resting the hand for several hours after the manual activity Many patients also complained of pain at night, which frequently was severe enough to prevent sleep Although the hypesthesia was slight in some cases at the time of testing, the patient would readily point out the portion of the hand in which paresthesias and numbness occurred after strenuous use of the hand, and this area invariably coincided with the sensory distribution of the median nerve

Hypesthesia in the median distribution was the most constant of all clinical findings in this series, occurring in 68 (96%) of the 71 patients Tinel's sign is a tingling sensation radiating out into the hand, obtained by light percussion over the median nerve at the wrist Tinel's sign was present in 63 (89%) of the 71 patients

Atrophy of the thenar muscles—opponens, short flexor, and short abductor muscles—was observed in varying degrees in 38 (54%) of the 71 patients Some of these patients were unaware of this atrophy until it was brought to their attention On looking down on the palm of the hand, one may often fail to observe the thenar atrophy, which is readily apparent when the profiles of the two thumbs are compared (fig 2) If the opponens muscle is spared, there may be pronounced atrophy of the thenar muscles without significant weakness in the thumb It has been established that there may be marked anatomic variation in the innervation of the thenar muscles, the ulnar nerve may supply some or all of the thenar muscles that usually are supplied by the median nerve[9]

The so called wrist flexion test was a very helpful diagnostic aid The patient is asked to flex both wrists completely and keep them flexed for approximately 60 seconds In this position, the median nerve is pressed upon by the proximal edge of the transverse carpal ligament to a greater extent than it is when the wrist is extended Even in the normal wrist, prolonged complete flexion of the wrist will eventually cause numbness in the median distribution in the hand In cases of compression neuropathy of the median nerve, however, there usually is a prompt exacerbation of numbness and paresthesias in the median distribution in the hand when the wrist is held in a flexed position, with prompt improvement in these symptoms when the wrist is returned to a neutral position The wrist flexion test was positive in 57 (73%) of the 71 patients

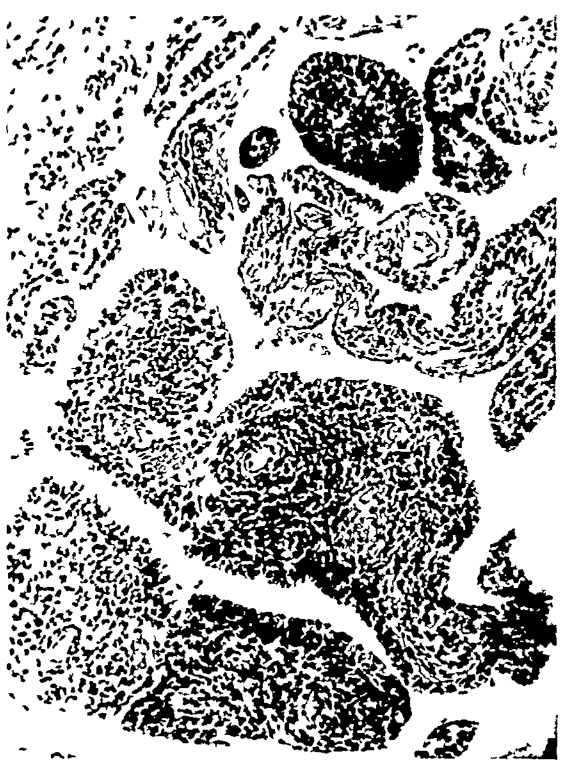

Fig 5 (case 2) —Photomicrograph of flexor synovialis showing hypertrophy of synovial lining cells and focal collections of lymphocytes compatible with microscopic findings in rheumatoid synovitis

It has been shown experimentally that pressure within the carpal tunnel is increased by extension of the wrist Sustained extension of the wrist, therefore, may also produce an exacerbation of numbness and tingling in the median distribution However, we have found that the wrist extension test is only occasionally positive in these cases and is not a reliable diagnostic sign

A pneumatic-tourniquet test has been described by Gilliatt and Wilson [7] Increased pain and paresthesias in the median distribution is produced by inflating a pneumatic cuff above the systolic pressure on the arm of patients with a carpal tunnel syndrome The test was positive in 13 of a series of 35 patients with compression neuropathy of the median nerve In many of our more recent cases we have employed this test, but we believe it is not so reliable as the wrist flexion test

Roentgenograms were made of at least one wrist in each patient in this series In no case was there evidence of sufficient arthritis or bony abnormality to produce the patient's symptoms of median nerve compression Special carpal tunnel views were not made in every case, so we cannot comment specifically about the bony contour of the carpal tunnel Since none of the patients in this series had a history of injury to the wrist or hand, one would not anticipate the presence of structural abnormalities in the distal radius or the carpus

If there is sufficient thickening of the flexor synovialis, there may be obvious swelling or a palpable thickening over the volar aspect of the forearm proximal to the wrist joint On two occasions, the median nerve itself was palpable as a firm, very tender subcutaneous mass immediately proximal to the transverse carpal ligament This mass was mistaken for a ganglion preoperatively in one case, this case has been previously reported by one of us [8]

In the 71 patients, the duration of symptoms referable to the hands was less than 6 months in 17 patients, from 6 months to 2 years in 23, from 2 years to 10 years in 19, from 10 years to 15 years in 8, from 15 years to 25 years in 3, and more than 25 years in 1 It is interesting to note that only 17 (24%) of the patients had had symptoms in their hands for six months or less The great majority of the patients had had complaints referable to their hands for at least a year or more Two patients had had symptoms for 20 years, one for 25 years, and another for 30 years

Differential Diagnosis

Pain and hypesthesia in the fingers can be produced by any lesion involving the nerve pathways to the hand Lesions of the central nervous system, such as brain tumors, syringomyelia, or degenerative diseases of the spinal cord, sometimes are causative Much more frequently, however, the lesion is found to be one that produces irritation of the fifth to eighth cervical nerve roots, such as protruded cervical intervertebral disks, hypertrophic arthritis of the cervical spine, and injuries involving the cervical nerve roots The peripheral nerves, including the brachial plexus, may be the site of the trouble A tumor or aneurysm in the neck, a cervical rib, or a tight anterior scalene muscle may compress the trunks of the brachial plexus The symptoms in the hands may be only a part of a generalized polyneuritis or a diabetic neuropathy

All of these conditions must be considered in the differential diagnosis of the carpal tunnel syndrome An accurate diagnosis of compression neuropathy of the median nerve in the carpal tunnel may be made, however, if Tinel's sign is present over the median nerve at the wrist, a wrist flexion test is positive, and all objective sensory findings are strictly limited to the median distribution distal to the wrist These are the three most reliable and most constant findings, and in almost every case at least two of these three clinical findings are present In addition, there will be partial atrophy of the thenar muscles in more than half of the cases

Pathogenesis

From our experience in the observation and treatment of these 71 patients, we have concluded that spontaneous compression of the median nerve in the carpal tunnel is caused by thickening of the flexor synovialis within the carpal tunnel The exact etiology of this condition could not be determined Biopsy specimens of the flexor synovialis were taken from 38 of the 49 wrists operated upon, and 14 of these biopsies showed evidence of a chronic inflammation compatible with a diagnosis of rheumatoid synovitis The other 24 biopsies revealed only a fibrosis or thickening of the synovialis without definite evidence of any inflammatory changes Sections were also made of the transverse carpal ligament in some of the patients, but no evidence of inflammation was seen in any of these specimens

Edema and thickening of the flexor synovialis seem to us to be the most likely cause of the development of a spontaneous compression of the median nerve in the carpal tunnel Nissen [1d] has also found a chronic nonspecific proliferative tenosynovitis about the flexor tendons in his cases We believe this tenosynovitis must be fundamentally rheumatic in origin, although it is certainly not necessarily associated with true rheumatoid arthritis The improvement noted in some cases after the injection of hydrocortisone (Hydrocortone) into the carpal tunnel would also lend credence to the rheumatic nature of the tenosynovitis Furthermore many of the patients complained of some periarticular swelling and transient stiffness in the small joints of the hand these symptoms were believed to result from a periarthritis

Ischemia of the median nerve has been cited as the primary cause of this spontaneous compression neuropathy [1c] Certainly, compression of the nerve may result in a certain degree of ischemia and this ischemia may, in turn, play some role in the production of the clinical syndrome The rapid disappearance of paresthesias and pain after operation makes it reasonable to regard the lesion as a transient ischemia of the nerve, but we believe this ischemia must be secondary to the thickening of the flexor synovialis rather than a primary condition

We believe that spontaneous compression neuropathy of the median nerve in the carpal tunnel is not an occupational disease Often repeated, forceful grasping movements might cause some tenosynovitis of the flexor tendons in the carpal tunnel, but this certainly is not a common finding External pressure, of course, from a hard object over a long period of time might also cause some direct pressure on the median nerve Kendall [1e] believes that the principal factor in the production of the carpal tunnel syndrome is a compression of the median nerve by muscle action It is true that almost every patient in our series described an aggravation of symptoms after strenuous use of the hands, and the symptoms were almost always worse in the dominant hand None of these patients, however, consistently did an excessive amount of work with the hands

The carpal tunnel syndrome has been described in association with certain systemic disorders, such as acromegaly and pleonosteosis,[9] which are usually accompanied by various degrees of proliferation of fibrous tissue There was no evidence of these systemic disorders in any of our cases

It is interesting to speculate why spontaneous compression of the median nerve occurs so much more frequently in women than in men There is no structural difference in the carpal tunnels of men and of women Men certainly subject their hands to more trauma than do women It is a well-known clinical observation, however, that rheumatic conditions of various types about the wrist and hand are more common in women than in men In this present series of cases, there was one woman with an associated Quervain's disease (stenosing tenosynovitis of the long abductor and short extensor tendons of the thumb), four women had an associated 'trigger finger (stenosing tenosynovitis of the flexor tendons in the palm), one woman had an acute pisiform bursitis, and two women had a 'tennis elbow (lateral humeral epicondylitis)

Since the majority of patients with compression neuropathy of the median nerve are women in menopause, Schiller and Kolb[11] have suggested that there may be a stimulation of connective tissue growth when estrogens are no longer present to suppress the activity of pituitary growth hormone They have treated three patients with so-called menopausal median neuropathy by the administration of estrogens in each patient the digital pain disappeared We have not used this treatment in any of our cases, but other authors[10] state that treatment with estrogens is not effective

Treatment

Decompression of the median nerve may be readily accomplished by section of the transverse carpal ligament This operation is recommended only when the patient's symptoms are severe and of long duration or when there is evidence of progression of the numbness and paresthesias in the fingers or evidence of thenar atrophy

The operation can be readily performed with the aid of local anesthesia, but we prefer to employ a general anesthetic, which permits a more thorough exploration of the median nerve and carpal tunnel A bloodless field, obtained by use of a pneumatic tourniquet, greatly facilitates the operation

A 3 cm transverse incision is made in the distal flexion crease of the wrist The medial end of this incision may be continued up the forearm, and the lateral end of the incision may be continued into the palm, forming an S-shaped incision through which the entire carpal tunnel and the lower forearm may be exposed We have seldom found it necessary, however, to employ so long an incision The simple transverse incision usually provides sufficient exposure to permit section of the transverse carpal ligament Care must be taken to section the entire ligament along its medial aspect in order to avoid any possible damage to the recurrent branch of the median nerve

A simple sectioning of the tranverse carpal ligament is usually sufficient to decompress the median nerve However, it sometimes is necessary to do a partial synovectomy before adequate decompression of the nerve can be obtained Synovectomy was done in 3 of the 49 procedures in this series

Since there has been no evidence of any disability whatsoever from section of the transverse carpal ligament, no patient should be denied the benefit of operation if there are positive indications for surgical treatment as noted above Not all patients with spontaneous compression of the median nerve in the carpal tunnel require surgery If the symptoms are mild and of short duration, a period of rest for the hand, with use of a simple wrist splint, may cause all symptoms to disappear The administration of hydrocortisone also may result in improvement

In this series we have operated upon 49 wrists in 37 patients Twelve patients with bilateral symptoms had only one wrist operated upon Eleven other patients with bilateral symptoms had only one wrist operated upon, symptoms in the other hand not being sufficiently severe to require surgical treatment We preferred not to operate upon both wrists at the same time, only two patients insisted that this be done One wrist was operated upon twice because the transverse carpal ligament was not completely severed at the first operation

Results of Treatment

The results in all 49 wrists that were surgically treated were good as far as relief from pain was concerned Not infrequently, on the day after the operation, the patients would volunteer the information that they no longer had the paresthesias and night pain that they used to have Normal sensation returned in 32 hands, and the remaining 17 hands regained some sensation in varying degrees

Thirty of the hands that were operated on had evidence of thenar atrophy Thirteen of these hands regained normal size and strength in their thenar muscles within from 6 to 12 months after the operation Eight of the 30 hands showed no evidence of regeneration of the thenar muscles, but none of these became worse The remaining nine hands showed varying degrees of improvement The thenar muscles improved the quickest, of course, in those hands in which the muscles had been paralyzed the shortest time preoperatively As a general rule, if the paralysis had existed for more than one year, the outlook for recovery after decompression of the median nerve was not too good However, two patients who had had atrophy for more than three years regained normal thenar muscles after the operation

Fifty per cent of the wrists that were operated upon showed a definite bulbous swelling of the median nerve proximal to the edge of the transverse carpal ligament In no case was there evidence of a true interstitial neuroma It was not necessary to perform a neurolysis of the median nerve in any case

At operation the median nerve showed evidence of obvious compression by the transverse carpal ligament in 60% of the cases In some there was a definite groove in the nerve where it rested beneath the proximal edge of the transverse carpal ligament We realize that there is normally a certain degree of flattening of the median nerve as it passes through the carpal tunnel

At operation 70% of the wrists showed definite evidence of a thickening of the flexor synovialis that we believe was sufficient to account for the median nerve compression

Five cases were reported as showing no obvious abnormality at the time of operation However, all of these patients were promptly relieved of their symptoms after sectioning of the transverse carpal ligament

In 20 of our more recent cases we have employed injections of hydrocortisone into the carpal tunnel, and 16 of these patients have shown definite improvement Usually three or four injections of 1 cc at weekly intervals are sufficient, and several patients required only a single injection for relief The injection is made by inserting a 25-gauge needle directly into the carpal tunnel, passing just medial to the palmaris longus tendon and the median nerve The 1 cc of hydrocortisone is dispersed among the flexor tendons and beneath the median nerve in the carpal tunnel No discomfort is experienced by the patient during the injection

Summary

We examined 71 patients with spontaneous compression of the median nerve in the carpal tunnel Most of these patients were women between the ages of 40 and 60 years We believe that in most, if not all, of these cases the condition was caused by some type of localized rheumatic disease—most often a chronic nonspecific proliferative tenosynovitis of the flexor tendons Diagnosis of this condition is made on the basis of a positive wrist flexion test, the presence of Tinel s sign over the median nerve at the wrist, and the limitation of all sensory findings to the median distribution distal to the wrist The majority of the patients in this series also had evidence of partial thenar atrophy The patient's symptoms of pain and paresthesias in the median distribution of the hand may be readily relieved by sectioning the transverse carpal ligament to decompress the median nerve in the carpal tunnel Only rarely is a partial synovectomy also necessary to decompress the nerve adequately In some cases surgery is not necessary, a simple wrist splint or the administration of hydrocortisone may alleviate the symptoms

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Periodic Peritonitis —American pediatric literature and textbooks do not contain any reports of periodic peritonitis, a syndrome which is familiar to internists in this country as well as physicians in the Near East and North Africa This disease, often familial, apparently is limited principally to Arabs, Armenians, and Jews, but other peoples occasionally are affected Periodic peritonitis is characterized by abdominal pain and tenderness, fever, polymorphonuclear leucocytosis, and, at times, pain in the thorax and joints The duration of an attack is 24 to 72 hours, it is followed by complete remission, but exacerbations occur at regular intervals and the remissions may become shorter with age Most of the patients have undergone appendectomy in childhood There is no appreciable effect on the general health or growth or development of afflicted children In more than half of the reported cases the onset took place in childhood, and the condition has been reported in the United States, Lebanon, and North Africa The cause of this syndrome is unknown Other authors have not found a relationship to allergy No infectious agent has been implicated The possibility of a neurologic background has been explored However, patients with abdominal epilepsy do not have abdominal physical signs or fever, and their attacks usually are controlled by anticonvulsant medication —G S Sturtz, M D, and E C Burke, M D, Periodic Peritonitis, *A M A Journal of Diseases of Children,* October 1956

HEALTH HAZARDS ENCOUNTERED IN REPAIR OF JET AIRCRAFT FUEL CELLS

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and
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• *In the maintenance of jet aircraft, the most hazardous physical danger results from exposure to the jet fuels while maintenance personnel are repairing or replacing the rubber lined fuel containers. The hazards involved include fire and explosion, acute intoxication from fuel vapors, systemic poisoning from tetraethyl lead, dermatitis from direct contact with petroleum hydrocarbons, and the acute psychological factor of confinement. In a study of 12 men who carry out fuel cell repair, occasional central nervous system reactions occurred among those who did not wear masks while performing their duties. The type and cause of the reactions point out the safety measures to be taken.*

The health problems encountered by Air Force personnel engaged in the maintenance of jet bombers could, in the not-too distant future, be encountered by personnel performing a similar operation on commercial jet airliners. Undoubtedly, the most hazardous of these operations is the cleaning and repair of the aircraft fuel cells, an operation potentially more hazardous than the cleaning of bulk gasoline storage tanks.

A study of this operation has been performed at Smoky Hill Air Force Base, Salina, Kan., with two principal objectives: (1) to evaluate the physical dangers that could result from chronic or acute exposure to aviation gasoline and/or jet fuels, and (2) to review the medical and engineering precautions necessary for the safety of the personnel engaged in this operation.

The fuel cells of the B-47 jet bomber are rubber-lined cubicles that fill cavities within the aircraft fusilage. Trained personnel must enter these cells to effect repairs or to remove the rubber lining entirely if necessary (*see figure*). Entrance into these cells is gained by means of small portals located on the undersurface of the fusilage and in the bomb bay. The interior of the cell provides minimal space for freedom of movement by personnel performing the operation of repair or removal. Since most of the cells are interconnected, it is often necessary to crawl from one cell into another, thus penetrating deeper into the fusilage of the aircraft and away from sources of ventilation (see figure, *B*).

It can, therefore, be readily seen that the operation is performed under extremely poor working conditions. The limited size of the access opening and the limited working space prohibit the use of cumbersome protective equipment by personnel. In addition, the very close confinement of the personnel while they are thus engaged is an acute psychological factor. Additional hazards include fire and explosion, acute intoxication from fuel vapors, systemic poisoning from tetraethyl lead, and dermatitis from direct contact with petroleum hydrocarbons.

Toxicity and Chemical Nature of Jet Engine Fuel

The figure 1,000 ppm is that most widely quoted as being the 'safe limit' for prolonged exposure, while the safe-practice manuals state that 'atmosphere within a tank which registers more than 14 to 20 per cent of the lower combustible limit is considered unsafe for breathing even for a short period of time.'[1] In the performance of fuel cell repair or removal, it has been found impractical to use these limits as a safe criterion because of the rapid build-up of toxic vapors even after ventilation for long periods of time. This is due to the interconnection of the fuel cells, which allows the fuel vapors to travel freely from one cell to another, and to the limited number and size of the access openings through which the cells can be ventilated. In addition, evidence that these limits are dangerously high has been presented along with the contention that a single figure for maximum permissible concentration of solvent vapors for a number of materials such as gasoline, jet fuel, benzine, and petroleum naphtha is not practical because of the wide variation in their chemical composition.[2]

Toxicologically, the Air Force has taken the stand that jet fuel and aviation gasoline are very similar, with the noticeable exception that jet fuels do not contain tetraethyl lead.[3] However, most jet engines can and do burn aviation gasoline occasionally, producing a potential lead exposure hazard to the men engaged in the fuel cell repair work as well as to other maintenance and repair personnel.

The jet fuel presently used by the United States Air Force exists in three grades, JP-1, JP-3, and JP-4, with JP-4 the fuel in common usage at present. The chemical composition of jet fuels has general characteristics, and all three fuels utilized by the Air Force are toxicologically similar. Basically, jet fuels consist principally of aliphatic hydrocarbons, with JP-1 containing not more than 20% of aromatic hydrocarbons by volume, while JP-3 and JP-4 contain not more than 25% of aromatic hydrocarbons by volume. In addition, JP-3 and JP-4 may contain up to 0.4% by weight of sulfur compounds other than mercaptan sulfur and as much as 0.005% of mercaptan sulfur by weight. These fuels may also contain oxidation in-

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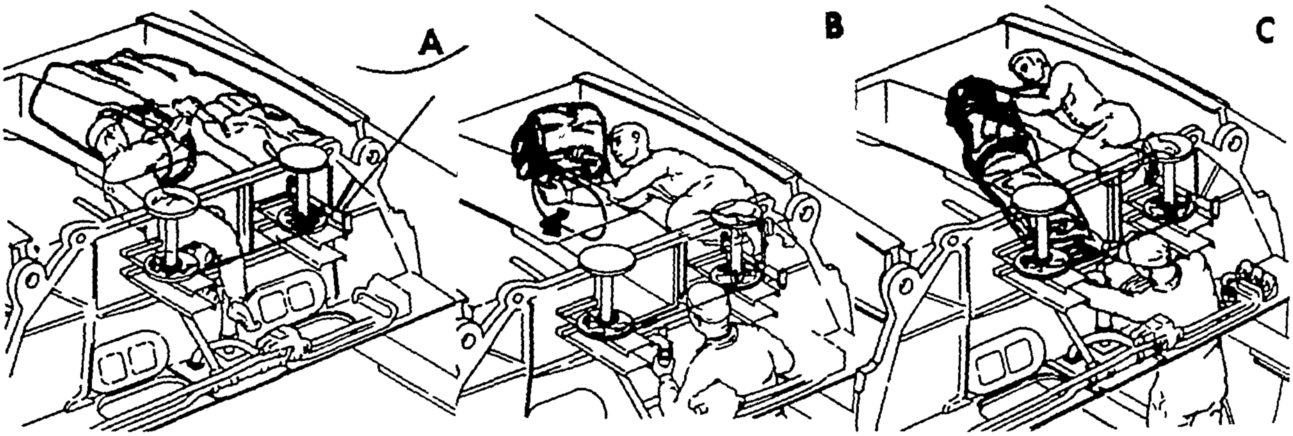
hibitors such as amines or phenols in small amounts

That jet fuel is toxic in the same order of magnitude as aviation gasoline is substantiated by the approximately equal percentage of aromatics present in each fuel[4] However, jet fuel is slightly less volatile due to a higher distillation temperature range, which reduces the likelihood of equally high concentrations occurring under similar conditions of temperature and pressure[5] To the man working within the fuel cells however, the resultant advantage that can be realized by this factor is almost nil

Paddy[6] states that "evidence of serious systemic injury from the prolonged inhalation of low concentrations of aviation fuel vapors is scanty and inconclusive It seems probable that concentrations low enough to produce no immediate response in susceptible persons will, upon long-repeated exposures, cause no serious chronic illness in man, but this point has yet to be established"



A position of airman in one fuel cell about to deflate lining of second fuel cell for removal *B*, position of airman in second cell cavity about to remove deflated fuel cell *C* removal of deflated fuel cell Note location and size of access portals

Dermatitis due to petroleum derivatives can be classified as contact or exogenous in nature It is most often an eczematous, follicular, or acneiform eruption Petroleum derivatives are fat solvents, which remove the natural skin oils and cause dermatitis by their defatting properties In addition, the chemicals present in fuels as inhibitors are also likely contributors to dermatitis Removal of the petroleum irritant from contact with the skin usually results in an improvement in the skin condition

Toxic Reactions

The physical examinations performed on 12 airmen (average age 23 years) who carry out fuel cell repair at this station were all within normal limits All laboratory studies also were within normal limits Because several men complained of dizziness, ataxia, and headaches during work and after leaving the cells, an attempt was made to discover if a relationship existed between the toxic symptoms and the wearing of a protective chemical cartridge mask (see table)

Occasionally there were central nervous system reactions, these occurred among those men who did not wear masks None occurred among those who did wear masks No definite evidence of chronic toxic effect was discovered in the 12 airmen examined It is highly probable that chronologically older individuals would be more susceptible to permanent organic injury

Safety Measures

Certain safety measures are recommended for personnel engaged in the cleaning and repair of jet aircraft fuel cells

1 All personnel so engaged should have preemployment physical and laboratory examinations, with follow-up examinations at six-month intervals

2 The fuel cells should be thoroughly emptied, dried, and ventilated prior to entry The use of explosion-proof blowers equipped with multiple, long-length flexible ducts for easy insertion into the multiple cells is advocated for more positive ventilation As the extreme confinement of the cell access openings makes it impossible for the men to wear positive pressure hose masks, chemical cartridge-type face masks for organic vapors have been used at this station As the efficiency of this type of mask is very limited (it is effective only at concentrations of organic vapors lower than 1,000 ppm), thorough evacuation of the fuel vapors from the cells must be accomplished before entry is made into the cells Reventilation of the cells must be carried out whenever there is a re-

Relationship Between Reported Symptoms, Wearing of Protective Mask, and Total Time of Exposure in the Cells in Twelve Airmen

Examinee	Reported Symptoms	Wore Mask	Length of Exposure Hr
1	Ataxia and occasional wobbly sensation after leaving cells	No	320
2	None	No	1 200
3	Dyspepsia indigestion	No	80
4	Dizziness (if remaining in cell too long)	No	720
5	Occasional sharp frontal headache and visual blurriness	No	400
6	None	No	480
7	None	Yes	1,300
8	None	Yes	500
9	Echoing repetition of thoughts racing of engines fuel burns	Rarely	1,300
10	Skin becomes dry and peels when clothing becomes wet with fuel	Yes	1 632
11	None (experienced dizziness when masks were unavailable)	Yes	1 040
12	None	Yes	1 020

currence of fume accumulation in order to insure an adequate oxygen supply and to prevent fume intoxication As the protection afforded by this type of mask is dubious even under these conditions, it is advocated that the positive-pressure type hose mask be adapted for use within fuel cells, thus insuring a constant supply of oxygen and positive protection against high concentrations of fuel and tetraethyl lead vapors

3 The cleaning and repair of jet fuel cells should be performed by not less than two men, with one man outside the cell serving as the observer of the man within the cell It is advisable that these two men carry on a continuous conversation (whenever possible), so that the observer may recognize an emergency and take prompt action in rescuing the repair operator

4 Clean, light-colored clothing of a material that is *not conducive to a build-up of static electricity* should be worn by personnel entering the cells This clothing should be changed and laundered upon the completion of a day's work or when it becomes contaminated with fuel

5 Lightweight rubber gloves and shoe packs should be worn by the personnel working within the cells

6 The workers should bathe at the end of each day's work or after any contamination of the body with fuel

Summary

Twelve airmen were examined in order to review and evaluate the dangers that could result from acute and chronic exposure to aviation jet fuels It was noted that occasional central nervous system reactions occurred among the men who did not wear a protective mask All physical examinations and laboratory studies were within normal limits The findings in the 12 men included in this study cannot be considered statistically significant on the basis of the evidence presented Certain safety measures should always be followed by personnel engaged in this type of work

USAF Hospital, Schilling Air Force Base, Salina Kan (Lieutenant Lombardi)

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LASTING VALUES IN MEDICAL EDUCATION

Herman G Weiskotten, M D, Skaneateles, N Y

• *There are many groups and agencies, including industry and the lay public, whose support and cooperation are essential to the continuous advancement of medical education and medical care The teaching programs of our medical schools should not remain static Important advances have been made, such as the shift of emphasis from the didactic to the experimental and practical methods of teaching, the establishment of full time faculties, and the development of clinical clerkships Criticisms that curriculums are overspecialized and that socioeconomic and environmental factors in sickness are neglected arise in large part from imperfect communication between groups, they indicate a need for the establishment of mutual understanding and cooperative relationship, especially between the schools and the local medical profession Unilateral action has sometimes proved detrimental to all concerned Continued progress depends on cooperation, especially on the part of leaders in both medical education and organized medicine*

In this, my last address as Chairman of the Council on Medical Education and Hospitals of the American Medical Association, I had anticipated expressing my great satisfaction with the present continuing development of medical education and the enormous progress that has been made in recent years I had anticipated congratulating the medical schools on this progress and on the recognition and support received, not only in this country but throughout the world

However, as I have reviewed the various criticisms that recently have been directed toward our medical schools and their educational programs, I have been forced to the conclusion that many believe that all is not as well as I had thought Some state that medical education is in a period of revolution, some, that it is in a period of transition, and others, that it is missing its objectives of training physicians for the care of patients Still others state that it is training technical specialists rather than practitioners of medicine and, further, that there is an almost total neglect of the patient as a person and of a host of socioeconomic factors that frequently play a major role in the prevention, diagnosis, and treatment of disease

Most of these indictments have come from individuals outside of the field of medical education who have special interests in socioeconomic, psychological, and public health fields as well as in the over-all problems that they consider involved in the complete medical care of the American public In the main, however, these individuals have had no experience or

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Chairman, Council on Medical Education and Hospitals of the American Medical Association

Read before the 53rd Annual Congress on Medical Education and Licensure, Chicago, Feb 11, 1957

have no competence in the field of medical education. As a rule they have no first-hand information as to the details of the educational programs of the medical schools of the country. They look to the medical schools to solve the problems they visualize in these fields. Many of these individuals apparently are living in a world of words and phrases that they do not find listed in the curriculum outlines of the medical schools. They, therefore, conclude that nothing relating to these words and phrases is in any way touched upon in the undergraduate program.

Moreover, the activities of these groups and the support available from some of them have had an impact on many of the medical schools, inducing them to accept these indictments as justified. As an illustration of such impact, I quote a recent statement by the dean of one of our leading medical schools: "Our preoccupation with scientific medicine has tended to let the patient fade into a faceless, nebulous creature, often no more than a number on a test tube or an entry on a chart." Although I am sure that this grossly exaggerated criticism was intended to stimulate thoughtful study, it was understood by many to justify fully the previously mentioned indictments and to point out the need for revolutionizing medical education.

I do not wish to suggest in any way that the teaching programs of our medical schools should remain static. As in the past, so in the future, there will be need for changes in curriculum content and in methodology. These continually must be adjusted to changes in the scientific as well as in the clinical and social aspects of medicine. However, new material and new approaches should be adopted only after careful and intelligent study and experimentation by the faculties of our medical schools. The schools should never adopt changes merely as a result of unintelligent propaganda having its source from the outside, or as a result of pressures from the administration of the university, or even as a result of pressures from within the medical school itself.

In view of all these circumstances, I have decided to base this discussion on my personal observations and my review of the changes that have been and are now taking place in medical education. As one who has been intimately associated with medical education on a local and national basis for nearly half a century, I believe there is some justification for this effort.

The Flexner Survey

My interest in medical education began about the time of the Flexner survey. I well recall the visit of Drs. N. P. Colwell and Abraham Flexner to my school in October, 1909. At this time there had been developed laboratory exercises in the basic science courses in most of the better medical schools. However, these were, in general, "cook book" courses illustrating various demonstrable aspects of the material covered in the lectures and textbooks.

The course in anatomy was almost wholly limited to pure morphology and frequently involved the learning of rhymes to assist in the memorization of various anatomic structures. The main emphasis in the physiology laboratories was on muscle-nerve physiology. In bacteriology, most of the time was devoted to the making of culture mediums and to studying the cultural characteristics of bacteria. In pathology courses, students spent much time in staining and mounting sections that usually proved entirely unsatisfactory for microscopic study. I still remember how severely I was criticized in 1914 for the publication of a paper recommending the use of loan collections of well-prepared sections in order to provide time for using the experimental method in teaching pathology.

Teaching in the clinical years was almost entirely by lectures and by textbook assignments, with occasional medical and surgical amphitheater clinics and ward walks. Diagnosis was taught in a manner similar to that of the use of a set of football signals, with various groups of findings leading to the diagnosis of specific diseases. In practically all courses, efforts were made to cover completely a chosen textbook and, in general, emphasis was placed on the presentation of masses of often unrelated facts. Outpatient teaching largely involved practice in bandaging and in the prescribing of drugs for the symptomatic treatment of ambulatory patients.

Faculty meetings, when they were held, involved accusations and counteraccusations by preclinical and clinical teachers and involved demands by influential specialists for more and more hours for lectures and clinics. A relatively large percentage of graduates entered practice immediately after graduation from medical school.

Although a few medical schools are justified in considering the foregoing statements as an unwarranted indictment of their then-existing programs, I can assure you that these statements do represent a true picture of the general level of medical education at that time. A few schools, notably Johns Hopkins Medical School, had been developing programs based on sound educational and scientific principles. These schools, together with a group of competent and dedicated individuals serving as faculty members in other medical schools, were to serve as the "torchbearers" in the advancement of medical education.

The great impact of the Flexner report was such that medical schools were forced to give serious attention to the improvement of their educational programs. Proprietary medical schools soon disappeared, and medical education passed out of the hands of isolated groups and was turned over to the universities. There resulted an increased interest in the programs of the Association of American Medical Colleges and of the Council on Medical Education, which had assumed roles of accreditation. Attendance at the Annual Congress on Medical Education and at the meetings of the Association of American Medical Colleges increased markedly. The programs of these meetings dealt with the problems and new developments in the educational programs. Visits by representatives of the college association and the Council provided opportunity for the discussion of the programs of the individual schools.

Medical Science Developments

Advancements in the medical sciences emphasized the necessity of students receiving a thorough grounding in the basic medical sciences if they were to apply these in their clinical training and later practice

Establishment of Full time Faculty—It became apparent that the character and training of the faculty, together with its interest in contributing to the advancement of medicine and its effective influence on students, more than any other factor, determined the quality of a medical school The employment of a competent full-time faculty and the provision and support of properly equipped laboratories for teaching and research in the basic medical sciences marked the first great advance in medical education It also greatly increased the cost of operating a medical school

The justification of increased cost was made clear by the changes that occurred in the teaching programs of the basic science departments of the schools undertaking the new developments There occurred gradual and continuing changes in viewpoints, objectives, course content, and methodology Emphasis was placed on the experimental rather than the descriptive approach to the subjects Large classroom lectures and discussions tended to be replaced by small group conferences Here, students were stimulated to think and to understand, rather than merely to memorize More and more attention was given to general principles and their application in clinical medicine For example, it was found that much of physiology could be taught in terms of human physiology by using the same instruments and procedures that students would later use in the clinical departments As advances in the basic medical sciences rapidly progressed, and as the advisability of adding new material increased, thoughtful consideration was given to the relative importance of the various elements of the course content

The establishment of full-time basic science faculties unquestionably better enabled the medical schools to implement their obligation to transmit knowledge As institutions of higher education the schools were now in a position to assume more fully the additional obligation of expanding the borders of knowledge through the research activities of their staffs The change in the educational environment that was incident to the research atmosphere so created has been of untold importance in the scholarly growth of medical students

Development of Clinical Clerkships—The success of the adoption of these sound educational concepts led to a consideration of their application in the teaching programs of the clinical departments Didactic exercises and amphitheater clinics provided little opportunity for students to apply their training in the basic medical sciences to the field of clinical medicine

Perhaps this led to the greatest single advance that has ever been made in the undergraduate clinical training of practitioners of medicine, that is, the development of the clinical clerkships Students were provided an opportunity to apply their training in the basic medical sciences in the diagnosis and treatment of disease They acquired training in the proper approach to problems in clinical medicine They were stimulated to do independent thinking rather than merely to accept and try to remember statements made in textbooks, didactic exercises, and amphitheater clinics With the large amount of time required for the establishment of clerkships, the clinical faculties were faced with the problem of determining their objectives Volume of coverage gave way to completeness in the basic training of the students in the proper approach to patients and to the problems of clinical medicine The number of didactic exercises was greatly reduced, and, with proper supervision, the education and training in the clinical years became individualized

Teaching and Research Programs—The dual allegiance of part-time and volunteer clinical teachers to their private practices and teaching responsibilities served to point out the importance of providing a central core of teachers serving on an essentially full-time basis in the major clinical departments These full-time teachers were needed to provide the desired supervision of clerkships and to initiate the desired research programs Fortunately, some of the few medical schools that pioneered in the early development of these advanced educational and research programs were producing a group of well-trained clinical men interested in academic careers of teaching and research Such men frequently served as the key personnel in the development of similar programs in other medical schools Furthermore, their interest in research and in the advancement of medicine greatly broadened the programs and responsibilities of the medical schools

At the beginning of these developments only a small part of the medical research in this country was conducted in medical schools In recent years the great preponderance of scientific advances in medicine have evolved from the research programs conducted in the basic science and clinical departments of our medical schools At the same time, such advances, together with the development of diagnostic and therapeutic procedures essential to their proper application in clinical medicine, have required a better understanding of the basic medical sciences than was previously considered essential to the successful practice of medicine

In the conduct of their teaching and research programs, the schools have played an ever-increasing role in establishing the highest possible standards of medical care both in their teaching hospitals and throughout the area in which they are located

Progress in Medical Care—All of these developments have enormously increased the cost of operation of our medical schools However, these increased costs have been fully justified by the fact that in recent years the health and medical care of the public have improved more than in all previous history Such progress has been the result of the application of the advances in medical science in the training of physicians Although we must recognize that not all of our medical schools have as yet been able to effect as full a development as desirable of the educational and research advancements to which I have referred, their underlying philosophy and patterns have been recognized as sound Many schools are in urgent need of the basic facilities, personnel, and financial support for these developments

If I am correct in this brief outline of the changes that have ocurred in the programs of the medical schools and of the effect of these changes on the advancement of medicine and the medical care of the public, we must retain the lasting values that have been successful in meeting our objectives of providing for the public the highest type of medical care commensurate with the ever-increasing advancements in our understanding of medical problems

Organizational and Other Support—Time will not permit any detailed discussion of the various agencies and factors involved in the continuing development and expansion of the teaching, research, and service programs to which I have referred This continuing development has been due, in part, to the combined and cooperative efforts of the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association, which, during the past 15 years, have worked in ever closer cooperation through the functioning of a liaison committee Some idea of the extent of the programs of these two bodies is indicated by the changes in their budgets in the past 15 years The budget of the Association of American Medical Colleges was increased from $31,500 in 1941 to $366,400 in 1956 The budget of the Council on Medical Education and Hospitals increased from $84,500 in 1941 to $410,000 in 1956

These two organizations, in addition to maintaining close relationships with the individual schools, have worked in close cooperation with the American Hospital Association, the Federation of State Boards of Medical Examiners, and a host of other groups and agencies interested in the advancement of medicine Without the cooperation of these groups, the medical schools would have found it difficult or impossible to develop their undergraduate and graduate teaching and research programs to the high level they have now attained

Throughout the entire period of these developments, much of the financial support and stimulus has been provided by philanthropic foundations and the private citizenry of the country Private industry and governmental agencies have greatly increased their support of medical education and research Never before have funds for the support of medical research been as readily available to the medical schools as they are today However, there still remains urgent need for the basic support of many of the schools The present trend away from categorical and toward unearmarked grants offers unusual promise for the sound and continued advancement of both the teaching and the research programs of the schools

Criticisms of Medical Education

I would like to expand briefly on some of the present criticisms of medical education referred to in my opening remarks

Trend Toward Specialization—To charge the medical schools and their educational programs with responsibility for recent trends toward specialization is to my mind entirely unwarranted Rapid advances in the field of medicine as well as in other fields of endeavor naturally have led to increased specialization In fact, failure to specialize would tend to deny to the public the advantages incident to many of these advances It is true that, especially in medicine and engineering, these trends have presented both educational and service problems However, whether we like it or not, specialization is here to stay In medicine we can take much satisfaction in the development and recognition of sound graduate programs for the training of specialists

Present undergraduate programs in our medical schools are in no way directed toward the training of specialists As emphasized by the Association of American Medical Colleges, medical schools properly have as their objective the provision of a solid foundation for a physician's continued development, regardless of the nature of his future career in the broad field of medicine It would be tragic if any sound educational program, basically designed to produce what might be called an 'undifferentiated physician," were altered in an attempt to resolve problems of general practice or medical practice in any particular form

I should like to add that, personally, I have no sympathy with certain efforts to induce a student, upon his admission to medical school, to commit himself to a specific type or location of medical practice

Neglect of Socioeconomic and Environmental Factors—Those who accuse the schools of the total neglect of the patient as an individual and of neglect of the socioeconomic and environmental factors related to what is frequently referred to as comprehensive medical care seem to feel that they are advocating something new in medical education They have probably forgotten that it was a medical educator who half a century ago pioneered in the field of medical social work

In my own medical school, more than 25 years ago, students serving as clinical clerks began to visit the homes of a certain number of patients assigned to them on the wards of the teaching hospital This practice is still continued The specific objective is the study of all of the various factors related to the patient's illness Experimentation with other carefully considered methods of giving the undergraduate student a proper viewpoint of the importance of these factors is to be commended, as long as such experimentation in no way lessens or weakens what I have referred to as the lasting values of a student's education and training Probably some schools have tended to neglect consideration of this aspect of medical education It is my own opinion that, where included, this aspect should be incorporated as a part and parcel of a student's clinical training rather than as a superimposed exercise or assignment

Under any circumstances we should remember that medical students are probably not as unfamiliar with these factors as some would have us believe Practically all of them have been members of families for 20 years or more before entering medical school The need for various forms of student aid suggests that they also have some familiarity with the economic problems of life Furthermore, as clinical clerks, stu dents come into more intimate and continued contact with individual patients and their problems than has occurred before in the history of medical education Finally, I resent the implication that the clinical teachers in our medical schools are a group of heartless scientists with no interest in the patient as an individual

Local Opposition to Medical School Programs

The very nature of advances in the teaching of medicine has resulted in the clinical departments playing a more active role in the medical care of the people of the area in which a medical school is located The policies of the medical schools have been varied in regard to privileges of the essentially full-time clinical faculty to conduct a limited amount of private practice Some of these policies have been seriously questioned As a result, in a few instances, certain local medical groups have handicapped or opposed the full development of the clinical departments of schools These groups sometimes fail to realize that the work of the men on the clinical faculty is essential to the sound progress of medical education and that an attitude of opposition rather than fair and just integration is a real threat to the very structure of modern medical education Local private practitioners not only should have an interest in medical education but should have much to contribute to it The establishment of clear understanding and cooperative relationships between the schools and the local medical profession should work out to the best interests of both groups

Comment

May I emphasize that our present programs of medical education are by no means perfect and probably never will be Nor do I believe that uniformity of the details of the curriculum of our medical schools is in any way desirable I have tried to refer briefly to the advances in the undergraduate programs of the medical schools that I consider to be of such lasting value that they should be carefully guarded less they be diluted or lost And I believe there is danger of losing them if organized medicine, university administrators, or even medical school administrators yield to popular pressures and attempt to dictate the policies or the educational programs of our medical schools

Undergraduate medical education must be left in the hands of medical educators, that is, in the hands of the experienced members of the faculties of the medical schools Only they are in a position to evaluate and deal with the complex problems of laying a foundation for a student's future career as a physician The time presently allotted to the undergraduate course is already extremely short, especially in view of the rapid advances in certain of the fundamental aspects of medical diagnosis and medical care Under no circumstances can we hope to give the undergraduate student the maturity, judgment, and attitudes in regard to all of the so-called practicalities of medicine that can only be acquired by his subsequent experiences in his hospital training and practice

Recognizing that the stated objectives of both medical education and the organized medical profession are the advancement of medicine and the provision of the highest type of medical care possible, I would like to make a plea for medical educators to take a more active part in the activities of organized medicine Organized medicine needs the assistance and advice of the medical educators of the country in dealing with many of the problems with which it is faced

Furthermore, I would like to make a plea for organized medicine, through its Council on Medical Education and Hospitals, to confer with the Association of American Medical Colleges in regard to problems relating to medical education Without such cooperation, even in the face of the best intentions, there may result in the future, as in the past, unilateral actions that may be detrimental to organized medicine, medical education, and the medical care of the public

There is a host of other groups and agencies, including industry and the lay public, whose support and cooperation are essential to the continuous advancement of medical education and medical care Surely, if leaders in these important areas of human endeavor approach their joint problems with the sole purpose of seeking resolutions that will best serve the interests of the public, much of the present controversy will disappear

In closing, may I express the hope that, after this glance over the road that medical education has traveled, you will agree with me that the progress made is indeed worthy of a commendation So much distance, including the steep hills with many obstacles, has been traversed as to make it clearly evident that our faculties have consistently recognized and chosen the way of lasting values I have every confidence that they will continue in this advance, pausing only on occasion, to read and intelligently interpret the signs indicating side roads of transient worth

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Hemosiderosis and Blood Transfusions—Periodic blood transfusions may be life-sustaining for patients with a refractory, chronic hemolytic, or aplastic anemia, but the necessity of such regular administration of blood is liable in time to result in hemosiderosis Since every pint of blood carries into the patient's body approximately 250 mg of iron and since there is no pathway for excretion of iron, the giving of large numbers of blood transfusions gradually leads to the deposition in various organs of the body of considerable quantities of iron which may in time interfere with their functions Hemosiderosis may affect the bone marrow, myocardium, kidneys and adrenal glands The liver may become cirrhotic or diabetes may result from siderosis of the pancreas—H F Brewer, M D , B Ch , The Hazards of Blood Transfusion, *The Postgraduate Medical Journal,* June, 1956

ORIENTING MEDICAL STUDENTS TOWARD "THE WHOLE PATIENT"

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• *In orienting the student to the patient, a major task is to mobilize the common sense insights that the student has already developed and to help him in organizing them and in examining their relevance to professional operations in the field of health and disease Visiting the patient in his home is not always better than seeing him in office or hospital settings, unless the student is prepared to overcome the social habits of polite evasion and tactful prevarication and to discuss essential matters with genuine respect, tact, and thoroughness After such orientation, his course is determined by two general types of factors One is the practice, counsel, and good example of admired young leaders, the other is the influence of a continued, liberal, humanizing education The student who is encouraged to use all university resources, liberal as well as technical, is likely to gain a good conception of the physician's responsibility that is implied in the phrase "the whole patient "*

In the strenuous reappraisal of medical education that has been proceeding so vigorously in the last two decades in America, the words "integrative" and "comprehensive" appear with great frequency These adjectives give expression to efforts at improvement, and they imply some dissatisfaction with medical education and medical practice The dissatisfaction is pointedly focused upon an educational process that has appeared too fragmented and upon a pattern of medical practice that is stigmatized as too specialistic or too technological At the same time it is vigorously asserted, and generally acknowledged, that health service in this country is at a higher level of excellence than ever before Indeed, it seems probable that the enthusiasm over its excellence provides a powerful motivation for proceeding vigorously toward the remedy of the defects in medical education

The recognition of defects has been stimulated, in some measure, by public criticism It is not that the public is antagonistic toward doctors Public attitude surveys show that medicine enjoys a very high prestige But there are criticisms Two common criticisms are that individual physicians do not show appropriate human understanding and that the medical profession in general shows little understanding of social processes affecting health If these criticisms are creditable, they appear to point up some defect in the preparation of persons in the medical profession There could, theoretically, be an alternative explanation, that persons entering the profession of medicine have little interest in human beings and human problems Admissions committees are much concerned about the selection of medical students and about the premedical phase of education There are academic processes that distort this selection and that disorient students to human and social values

In 1951, in a conference on psychiatry and medical education, sponsored by the American Psychiatric Association, there was submitted a rather extensive review of opinions obtained from a selected list of knowledgeable laymen A brief quotation from one citizen may serve to epitomize the comments of many He wrote

> Many doctors treat their clients as mere patients, rather than as fellow human beings Many doctors whom I know are congenial fellows, but in their relationships with the patients they ve the impression of being hurried There is a certain assembly ne attitude and aloofness to which the patients are keenly itive It is no wonder that quacks by the thousands thrive because they listen, they sympathize and they give the impression of sincerely desiring to help, even though they do not have the proper medical training if any at all

Critics within the medical profession have been somewhat harsher, pointing up not merely an irritating lack of graciousness and human sympathy but instances of doctors' serious misunderstandings and failures in professional obligations because of the failure to recognize emotional factors in the patient s distress or disability These critical remarks need not be multiplied What I have said will suffice to focus attention upon the need, in medical education, for orienting doctors more effectively toward the patient as a person My discussion shall be concerned most directly with the consideration of how this need may be met

Role of Psychiatry

There is a common belief that what needs to be learned can be taught The assertion has been made that doctors do not understand human nature or do not use this understanding in their professional work, hence, somebody should teach them this understanding and how to use it in their work The task of leadership in such teaching has been assigned to the department of psychiatry in the typical American medical school of today Why?

First of all, in explanation, it should be said that psychiatrists have been granted such opportunities and responsibilities because they sought them They felt that they had, in recent decades, developed within psychiatry a considerable body of useful knowledge, theory, and skills regarding personality and the ways of dealing with emotional processes This body of knowledge seemed to offer to physicians in general a useful basis for understanding and dealing with human nature

The core of this modern psychiatric insight and working methodology lay in a very simple and elementary proposition, namely, that those oddities of behavior, thought, and feeling that constitute the

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symptomatology of the psychotic and neurotic types of illness are found to have human meaning with relevance for him in motivation That is, these oddities are found to be relevant to the issues and conflicts of life This proposition is usable (and this is the key clause) if one can gain a sufficiently penetrating understanding of the personality and the situation Psychiatric symptoms have personal meanings, and patients can be helped in their conflicts and in their life situations through the physician's understanding of these meanings It can be said also that many medical situations involve similar personal meanings and emotional implications, often useful and important in a treatment program

It is easy to assume the fallacy that when one has penetrated to the meaning one has penetrated to the cause This vulgar fallacy of identifying meaning and cause has confused the psychiatric literature and has created difficulties in presenting to medical students the basic insights into human nature that have been reliably gained by psychiatrists This fallacy is commonly compounded with the fallacy that anything that is psychological can, of course, readily be changed Actually some patterns of expectation and action, developed through significant life experience and repetition, become deeply imprinted and practically unalterable There is no sure way, other than empirical study and trial to know which kinds of experientially developed patterns are unmodifiable and which are modifiable, and how

Knowledge of Human Nature

These brief comments may serve to indicate, in a general way, some of the special difficulties in selecting appropriately the useful and reliable parts of that dynamic knowledge of human nature gained by psychiatrists in their special field Then comes the task of bringing such knowledge and possible skills to the student's attention and engaging his interest

The major task, however, in orienting a student to the patient as a person is not instructional in the sense of selecting and presenting information The major task is to mobilize the common-sense insights that the student has already developed, or almost developed, and to help him in scrutinizing and in organizing his own insights and in examining the relevance of these insights for professional operations in the field of health and disease To stimulate the mobilization of such common-sense insights in the student, it is useful to set him to work studying examples of human adjustments to illness, particularly examples of good adjustment He should also seek an understanding of the personality resources that potentiate good adjustment, and of the influences of family and social background favorable to the development of good adjustment potentials In many ways such an effort to bring to expression the student's own increasing organization of himself in the service of his professional work is analogous to the functions of a liberal education, and probably, in essence, it is identical

It has appeared to me that the most useful of the general guidelines in the instructional part of this type of program have been those provided by what we know and can sensibly formulate about personality development Some of the basic ideas can be succinctly stated here

Human beings, as we know them, are inescapably interdependent They live with and for one another Man is not well equipped, biologically, for completely independent living, but he has been provided with emotional potentialities for a life of domestication and socialization Through the educative experiences thus made possible, individual persons develop their personalities, and thereby their interests, make their basic commitments to values, and acquire, in the process, certain conflicts of interests They achieve also some measure of maturity for dealing with their responsibilities and opportunities It is a zig-zag progress, not clearly straightforward One begins weak and helpless and must, perforce, learn first the domesticated ways of gaining affection and favoritism as a baby Later, as a child, one develops strength and skills and, in the security of the family's way of life, explores the available range of self-assertive and adventurous behavior, and then later, sometimes much later, one develops responsiveness to others' needs and fills the roles of responsible domesticator and provider

In the college dictionary, the student can find man characterized as Homo sapiens, and it is good for one to recognize man's sapience In a wise-cracking mood one may abbreviate it to Homo sap, and surely the doctor needs to understand human folly But the medical student's dictionary should characterize man primarily as Homo domesticus, a domesticated creature, living in a family and developing, in the family setting, the basic emotional attitudes and conflicts of interests that may later enthuse or bedevil his interdependent existence These attitudes and conflicts he is likely to carry with him on the job, in the hospital bed, or in the doctor's office The wise doctor does well to envisage each patient in a domestic frame of reference

In a number of the current experiments in medical education, the effort is made to get the medical student to cultivate this domestic frame of reference for understanding human nature by assigning him to a family or inviting him into the family situation This seems like a realistic method of education, yet it may fail People have been living in homes and passing through the homes of others for a long time, but they may remain extremely obtuse as to the emotional situations existing there Indeed, for most well-brought-up people, proper manners require a certain degree of obtuseness, just as proper manners in ordinary life require a politely optimistic prevarication in reply to the social greeting "How are you?' There are additional conventions, or cue systems, especially suited to the well-defined roles of doctor and patient, which, for example, permit the patient, but not the doctor, to express how miserable he is Sometimes these cues get mixed An addled patient may reply to the doctor's question by denying symptoms, or he may bring forth other polite prevarications, out of inappropriate social habit Often, the anxious medical student, without the steadying earnestness of clearly defined and familar tasks, visits a family and, through lack of a clear role, gets his cue systems mixed Conversational difficulties may be produced, but also, more frustratingly, matters of emotional significance may not be comprehended, or even observed

It has been noted that a student, working as a clinical clerk on a ward service, may through interviews with a patient in that setting, gain a comprehension of a patient's domestic anxieties and tensions that is much more penetrating and usable than that gained by visiting in a patient's own home Indeed, patients themselves sometimes get a better understanding of their own home situation by getting out of the home and going to a doctor's office for a talk with the doctor The meaningfulness of domestic situations inheres more directly in the persons than in the house or the furniture Words truly have their limitations, but the opening of the mouth in speech in a suitably cued situation may yield a more useful understanding of a domestic life situation than can be gained by opening the actual door to the living room, or even the bedroom, and examining the establishment

The cue systems of the sociability settings in which medical students have learned their manners have provided some conventional prevaricating patterns of tact and of evasive politeness When one is undertaking the role of physician, however, it is expected that one will have the courage and understanding to discuss many matters not accessible under the sociability cue system, and to discuss them with genuine respect, a special kind of tact, and with thoroughness

Consider, for example, that the usual polite conventions of conversation or public talk discourage or prohibit the mention or the discussion of the less noble motivations, or the less highly regarded features of personality, such as immaturity, yet how necessary it is to have some comprehensive grasp of these subjects, beyond the superficially polite level, in order to have a professionally useful understanding of the problems of human interaction needed in comprehensive patient care Students need the guidance of sound and penetrating theory in the deeper understanding appropriate to professional work They also need emotional support in the early phases of gaining practice and skill in interacting with patients at the more fundamental level

The medical student, in the clinic or hospital setting, may well feel more poised and secure than on a home visit He wears a white coat and has his stethoscope at hand, not for stilted show but because he uses it regularly He has a definite and dignified function and can bring himself more fully into the interview, with a greater likelihood of having a clear head and of being alert to possible emotional issues than when he is in the patient's home, vaguely imitating a social worker or a somewhat indefinable benevolent visitor

For these reasons and others, it appears to be doubtful that the mere physical entrance into homes brings a very constructive gain for that early phase of medical education designed to provide a basic orientation to human nature At an appropriate later stage, when he has developed a more secure professional orientation, the young doctor will find in home visits good opportunities for broadening his range of understanding and supplementing his acquaintance with the great diversity of domestic cultures

Determinants of Integration of Knowledge

Assume that the student has been aided in developing some framework of thought about personality and personality development for orientation to patients as persons, somewhat along the lines already suggested, incorporating as much as possible of his own share of common sense, and that he has received some primary guidance in interviewing patients One then comes to the crucial conditions that determine whether all this will become an inherent part of the student's working methods or be forgotten and neglected along with much else called basic science The crucial determinants are of two general types on the one hand, practice and counseling therein and, on the other hand, some continuation of liberal and humanizing education

Let us consider first the practice and counseling One might assume, since all patients are in fact persons, that this simple fact and its major emotional implications would be constantly clear to any student working with patients and that this obvious truism would guide the student aright I have heard that S Weir Mitchell, the famous neurologist, when asked to discuss the doctor-patient relationship, remarked testily that all physicians were gentlemen and would therefore know how to manage any personal relationships properly and, if they were not gentlemen, there was nothing that could be done about it But it is our experience that students, when reasonably well oriented to the possible medical significance of emotional reactions, do encounter problems and do seek guidance about the emotional problems of their patients, whenever competent counselors are readily available in their working situation In our program at the Johns Hopkins Hospital we have tried to make such persons available, particularly during the strategic clinical clerkships in internal medicine and pediatrics Without such guidance and support in evaluating and dealing with emotional factors, the primary orientation would probably be futile or mischievous in effect

In this connection it should be emphasized that the resident staff in a teaching hospital have a preponderant influence on the student attitudes regarding all the basic sciences We used to lament the great gap, almost an attitude of opposition, between the preclinical and the clinical parts of medical education, but the causes for lamentation have considerably decreased with the increasing activities of residents and fellows in the fields of basic sciences in close relation to clinical problems The contagiousness of such interest and respect, as it affects the medical students, has constituted one of the principal integrative forces in medical education The same general principle holds also in regard to the kind of study given to the patients as persons The earnestness and effectiveness of such study is like the phenomenon of induction The student directs his efforts along lines where admired young colleagues lead

I have mentioned as a second crucial determinant of the effectiveness of this aspect of medical education the continuation of liberal and humanizing education It is trite to say that education is a never-ending effort for anyone in the medical profession It is also trite to say that, in large part, this continuing education must be self education In some medical schools this is not merely a trite remark but a principle of action, and an appreciable portion of student time is reserved for individually directed education, or at least opportunity is maintained for individually selected studies The earnest pursuit of knowledge and insight into human problems is the natural accompaniment of any vital interest in patients as persons Individual students and individual doctors do at times find time and method for self directed enlargement of their liberal education, along humanistic, social, and historical lines I hope, however, that, in the future, universities will offer more opportunity and encouragement to medical students to use all university resources, liberal as well as technical, for their fuller education, that the medical part of the university may be less a technologically segregated unit, and that, as the need becomes individually apparent, the students may have further opportunities to overcome unexpected inadequacies of earlier phases of education These measures would assure that the conception of the physician's responsibility that is implied in the phrase "the whole patient" would be granted a greater chance of viability in "tomorrow's medical education"

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SCIENCE AND MEDICAL EDUCATION

Dana W Atchley, M D , New York

• *Three essential qualities of the ideal physician are that he be a cultivated man, that he be capable of compassionate and perceptive responses, and that, above all, he be a scientist, for it is this quality that distinguishes him from any of the well veneered and sympathetic practitioners of the healing arts The primary responsibility of the medical school is the development of scientific understanding, and the curriculum must be oriented more to understanding than to knowledge*

There is always a certain amount of embarrassment attached to the offering of ideals, particularly if they approach the unattainable Yet unattainable ideals are valuable when they serve as goals that stimulate and guide progress, they are a handicap only when failure to reach them discourages further endeavor I shall therefore venture to mention briefly three essential qualities of an ideal physician We should require of this not-too-hypothetical individual that he be a cultivated man, that he be capable of compassionate and perceptive responses, and, above all, that he be a scientist, for it is this quality that distinguishes him from any well-veneered and sympathetic practitioner of the healing arts

The exaggerated respect evoked by the healer affords him a remarkable influence, not only on his patients but on his total social area If he be a person with appreciation of cultural values, familiar with history, liberal in thought, devoted to the finer things, he can exercise an elevating influence of great value in most environments These assets of a cultivated man are derived essentially from his family and from his education prior to medical school Our opportunity to further this component of the good physician lies mainly in recognition, by admissions committees, of the candidates who manifest it I agree with the minority opinion that cultural "bird's-eye" courses are a poor pedagogic approach to this problem in the college years I prefer a man who has dug deeply into one of the humanities to one who has scratched the surface of many fields, a cultivated man is more a scholar than a dilettante

Sympathy, compassion, and a quick, warm responsiveness are basic attributes of the healer and have been a major source of his success from first recorded medical history, their value is in no way decreased by the other services the present-day physician has to offer What was almost the sole contribution of the physician in the previous century is still his main gift in many cases A self-identifying awareness of the feelings of others is largely an inborn trait, but the influence of a kindly home and exposure to such attitudes in medical school can awaken and amplify this facet of the ideal physician It is difficult to recognize these qualities with any degree of accuracy during an admissions interview, and, moreover, their absence would not handicap a man headed for an investigative career

While it is highly desirable for our ideal physician to have culture and compassion, it is imperative that he be a scientist, and therefore the primary responsibility of a medical school is the development of scientific understanding If the student arrives with a good background the task is easier, but, at best, it is a colossal task and the time available grows less and less adequate

Role of Science in Medicine

It seems strange that in mid-20th century one should be constrained to enter a defense of the role of science in medicine Yet presently there are strong movements aiming to dilute the medical curriculum with time spent on attempts to inculcate social respon-

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Professor of Clinical Medicine, Columbia University College of Physicians and Surgeons

Read before the 53rd Annual Congress on Medical Education and Licensure Chicago, Feb 11, 1957 miliar tasks, visits a family and, through lack of a clear role, gets his cue systems mixed Conversational difficulties may be produced, but also, more frustratingly, matters of emotional significance may not be comprehended, or even observed

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Determinants of Integration of Knowledge

Assume that the student has been aided in developing some framework of thought about personality and personality development for orientation to patients as persons, somewhat along the lines already suggested, incorporating as much as possible of his own share of common sense, and that he has received some primary guidance in interviewing patients One then comes to the crucial conditions that determine whether all this will become an inherent part of the student's working methods or be forgotten and neglected along with much else called basic science The crucial determinants are of two general types on the one hand, practice and counseling therein and, *on the other hand, some continuation of liberal and* humanizing education

Let us consider first the practice and counseling One might assume, since all patients are in fact persons, that this simple fact and its major emotional implications would be constantly clear to any student working with patients and that this obvious truism would guide the student aright I have heard that S Weir Mitchell, the famous neurologist, when asked to discuss the doctor-patient relationship, remarked testily that all physicians were gentlemen and would therefore know how to manage any personal relationships properly and, if they were not gentlemen, there was nothing that could be done about it But it is our experience that students, when reasonably well oriented to the possible medical significance of emotional reactions, do encounter problems and do seek guidance about the emotional problems of their patients, whenever competent counselors are readily available in their working situation In our program at the Johns Hopkins Hospital, we have tried to make such persons available, particularly during the strategic clinical clerkships in internal medicine and pediatrics Without such guidance and support in evaluating and dealing with emotional factors, the primary orientation would probably be futile or mischievous in effect

In this connection it should be emphasized that the resident staff in a teaching hospital have a preponderant influence on the student attitudes regarding all the basic sciences We used to lament the great gap, almost an attitude of opposition, between the preclinical and the clinical parts of medical education, but the causes for lamentation have considerably decreased with the increasing activities of residents and fellows in the fields of basic sciences in close relation to clinical problems The contagiousness of such interest and respect, as it affects the medical students, has constituted one of the principal integrative forces in medical education The same general principle holds also in regard to the kind of study given to the patients as persons The earnestness and effectiveness of such study is like the phenomenon of induction The student directs his efforts along lines where admired young colleagues lead knowledge and are eager to learn, so patients rarely suffer from a dictatorial error by the chief, and the staff matures through interchange of divergent opinions.

With the remarkably precise organic appraisal that scientific methods make available, we are now able to evaluate, with a new degree of accuracy, the participation of other components, such as heredity, personality, and environment. Indeed, the comprehensiveness of so called comprehensive medicine depends more on scientific comprehension than on humanistic inclusiveness. The good family physician of 50 years ago was acutely aware of the important role that family, personality vagaries, economics, and ambition played in his patient's health but the physical machine was largely a mystery and psychology was wholly intuitive. Today's physician, if he will take the time and trouble to do so, comprehends the total individual to an extraordinary degree and can thank science for this improved vantage ground.

There has been a rather widespread impression, fostered at times honestly, but sometimes maliciously, that a scientific training dries up the milk of human kindness. It is difficult to trace the sources of this palpably absurd belief, perhaps it came from reading about "thinking machines" in science fiction, or perhaps from the unconscious jealousy of men not fortunate in possessing such a training. I have observed many scientifically trained clinicians and also men less lucky in that respect and I have never seen a sympathetic person frozen by a research career or a cold, tactless individual thawed by general practice.

Education of Medical Scientists

The application of the foregoing discussion to medical education is obvious. In order to ensure the highest quality of medical practice, our first and foremost duty is to graduate medical scientists. This means a curriculum oriented more to understanding than to knowledge, a student body more eager to learn than to be taught, and a faculty with sufficient investigative experience to develop a sound, critical capacity in its students. In addition, well-guided student research can be a tremendous asset in cultivating an appreciation of the philosophy of science.

A program of scientific indoctrination in medical school is greatly aided by a college training that includes courses in mathematics, chemistry, and physics and that, in at least one of these subjects, is advanced enough to give the student considerably more than a superficial understanding of the discipline involved. Furthermore, there is great value in studying one of the humanities in depth. Concentration on Elizabethan literature, anthropology, or the history of philosophy tends to produce a scholar, and the methods of thought of a scholar in any field are much the same as those of a scholar in science.

It is universally agreed among experienced educators that disciplined intellectual power is more valuable than knowledge, that the forming of the mind has priority over the imparting of information. This point of view in no way derogates knowledge per se, but it must be accurate knowledge subjected to careful scientific scrutiny. The successful teacher finds no mutual exclusiveness between the development of intellectual critique and the communication of facts. But facts in a dynamic discipline, such as medicine, are too often dated. Consequently, as the physician leaves medical school further and further behind, he must rely upon himself to appraise the soundness of new information. The scientific critique developed in medical school will be his chief guide in differentiating the true from the false. It is trite but essential in these days of anti-intellectualism to state again that the continued professional growth of the physician depends on the way he has learned to use his mind rather than on what he was able to store in it during medical school.

It is through the processes of science that meaning is attached to otherwise lifeless data. Science transforms the static into the dynamic, makes mechanism more important than morphology, and adds the delightful intellectual savor of understanding. The joy of understanding is both the closest rival of the joy of service and its most effective partner.

The continued flowering of medical science depends on the early recruiting of young investigators. Any tendency to transfer primary pedagogic emphasis from the firm hard-thinking of the natural scientist to the expedient artisanship of the practitioner will tend to discourage the creative mind. This emphasis on science in no way inhibits recognition of the value of compassionate responses. The very nature of social and economic problems calls for exceptional objectivity and austere critique, which are learned best within the university walls.

If the thesis be accepted that a medical student should in the course of his training become a scientist, we must face the very difficult problem of implementing this decision. Probably there is no more fundamental requirement for the attainment of this goal than an atmosphere of research. In every department the student should find evidence of intellectual curiosity, of man's insatiable mind at work, but in addition be should be told the exciting story of the development of knowledge so that he may experience, at least vicariously, the pains and pleasures of exploring the unknown. He should be taught to recognize the type of thinking and the quality of experimentation that has been successful in revealing new facts and relationships. The student should come to realize that, some centuries ago, a curious and thoughtful mind needed less knowledge than courage, but now courage is not so important as familiarity with a basic scientific discipline.

Although it may not be practical to offer a course in logic, there is no profession that needs it more. The undergraduate level of medical school presents the best opportunity to inculcate this invaluable gift. No matter what the subject, it is possible to point out the dangers of careless hypotheses, to contrast *post hoc* with *propter hoc*, and to present the criteria by which scientific evidence is accepted or discarded. There must be appreciation of the dangers of focusing on one variable and the omitting of controls. I have always felt that the clinician has an excellent opportunity when he teaches history-taking to insist that the data be accumulated according to the rules of logic and expressed with some attention to the precise use of language As the journalistic tendency of the clinical clerk is moulded into something approaching a scientific analysis of the patient's history, conscious emphasis on the rules of logic makes a more lasting impression than would a course devoted solely to that field

The role of science in improving management of the most practical problems can be used to illustrate to the student the importance of an understanding of the basic scientific knowledge that at times seems irrelevant to him The contributions of work on electrolyte physiology to postoperative care, of respiratory physiology to anesthesia, or of renal physiology to urology are examples of material that would orient the alert student in proper fashion

However, no manipulation of the curriculum and no brilliance of pedagogy can compare with participation in research for the production of a scientific critique Unfortunately, there is often no time or laboratory space available, and many students have neither the interest nor the capacity for investigation Nothing is more futile than forced or contrived involvement in a research problem But the schedule should be sufficiently flexible for the provision of free time to those who do have the interest and capacity, and the faculty should make a conscious effort to indicate the high value of research in the development of a modern physician Whether the student becomes a psychiatrist, a family physician, or a specialist in a limited area, he will be capable of richer service to his patients if he has, in person, experienced the discouraging but illuminating difficulties that afflict the individual who attempts to widen the perimeter of our knowledge

Conclusions

As we seek to produce the ideal physician, we can try to select cultivated men and women and we can stimulate a humanistic response by precept and example But we can create a scientist capable of coping with his evolving discipline only by establishing an atmosphere of sound critical thinking in an environment dedicated to advancing the science that is a physician's unique contribution to man's health and happiness

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THE PROS AND CONS OF INTEGRATION AND CORRELATION

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• *Three needs of present day medical education are especially considered the need of assimilating recently accumulated knowledge, the need of recognizing the emergence of a well founded psychiatry, and the continuing need of eliminating obsolete modes of therapy Teaching methods and administrative schemes work only if vigorous teachers are available Excessive departmentalization causes a loss of educational perspective Condensation, integration, and the joining of related departments into a division should help to keep the demands on the student within reason, it should assure psychiatry its proper place in the educational plan and help to rid therapeutics of an accumulation of obsolete methods*

Much has been said and written in the last few years regarding the need for integration and correlation in the teaching of medicine If the strict definition of these words is employed, there is nothing new about their use in medical teaching Before examining the pros and cons of reintroducing them or of redeploying them in the present curriculum, let us examine past experience in their use

One hundred fifty years ago medical education was integrated It is true that the teaching of medicine and surgery were separate Medicine was taught by the professor of physick, and surgery by the professor of anatomy and surgery, but the teaching of each subject centered around the patient, and the aspects of the patient's problem were integrated into a whole So little was known, there was no other way Medical knowledge had not as yet been splintered off into separate pieces It was only as knowledge developed that the various aspects acquired a body of knowledge sufficient to be split off and studied as a separate part Here an integration of a type was employed As bits of chemical knowledge and understanding appeared these bits were assembled and integrated into the science of biochemistry Knowledge of function was later similarly assembled and integrated into the science of physiology Ideas regarding one organ were correlated with those of another, and laws of function and chemical reaction were formulated Koch's postulates were an example of such correlation

Knowledge was rudimentary when each aspect was set apart for separate study Anatomy, pathology, chemistry, physiology, and pharmacology were in their infancy Medicine and surgery were no further advanced Bacteriology dawned as a new science Pursued as separate entities, these various fields of medicine have undergone prodigious growth of understanding in the past 100 years Each field of medical science has been assigned the autonomy of departmental structure, and each department has been jealously guarded by its proprietors As far as medical education is concerned, the integration and correlation of knowledge has awaited the clinical years of medical

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Read before the 53rd Annual Congress on Medical Education and Licensure, Chicago, Feb 11, 1957

school Here the clinician also preoccupied with his special interests, has often faltered and fumbled The past 50 years have witnessed many delays in the appreciation of the significance of knowledge in one field to that of another The long delay from the discovery of the sulfonamides to their clinical use is but one example Better integration and correlation could have hastened the utilization of discoveries in the care of the patient But would the integration have slowed the development of each science?

Factors Calling for Revision of Approach

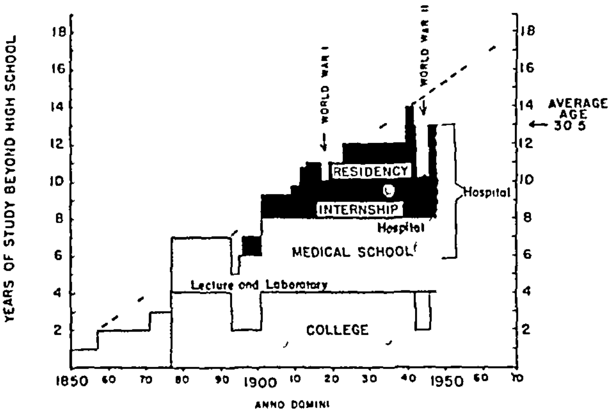
Today three separate factors cry for revision of our present approach to medical education the huge body of knowledge useful to medicine, the birth of a well founded psychiatry, and a threatening hoard of obsolete modes of therapy What is the nature of these and how far will integration and correlation answer the need for revision?

Large Body of Knowledge—What the growth of knowledge useful to medicine has done to medical education is most readily grasped by looking at the course of medical education over the past 100 years In 1850 the formal education of the would-be surgeon at the Harvard Medical School and the Massachusetts General Hospital was one year (see figure) With each decade courses have been added and the curriculum has been lengthened In 1941 his education involved a period of 14 years from high school graduation to the completion of his residency training When the additions are plotted against the year each was introduced, the lengthening of the curriculum assumes a straight line in terms of time If this line is projected to 1970 the curriculum reaches the astounding length of 18 years The curriculums of the general practitioner, the internist, and other specialists have been similarly lengthened

What has caused this lengthening of the curriculum? As each area of information important to medicine and surgery has been unfolded, and as each new fact and each new technique has been disclosed, all have been dumped into the curriculum, and the necessary months and years have been added to teach them From time to time systemization of knowledge has reduced the number of isolated facts to be learned, but, on the whole, once something has been added, little has ever been pruned Certainly no concerted effort has been made recently to discriminate between facts essential to medical education and those less likely to stand the test of time Those facts less illustrative and therefore less significant to the educational process have not been weeded out The result is that medical education is now bogged down in a welter of facts, and it threatens to become worse in the near future Medical knowledge is continuing to grow, and the curriculum will continue to lengthen unless some mechanism is found to halt it Selection of what is taught is an obvious answer, at least to this aspect of the problem Has a new application of integration anything to offer? Should the presently highly integrated medical sciences and clinical specialties be broken up (disintegrated, one could call it) and a new structure be composed of parts of each?

At this point, the following question is pertinent Is it essential that the medical student learn every fact of medical science and clinical medicine? He will not know all later on when he is a practitioner For example, should every medical student know all the details of the curare group of drugs, every last feature of the electrocardiogram, and the technical details of the management of every fracture of every bone in the body? Would it not suffice if the student learned where curare fits into the scheme of drug action and how it affects the transmission of the nervous impulse, what the electrocardiogram is, with one or, at most, two examples of its use, and the management of one or two fractures as illustrations of the principles of clinical care and bone healing?

Any effort to eliminate areas of knowledge from the medical curriculum meets with stubborn resistance In general, each faculty member thinks his own particular knowledge is of the utmost importance It is, of course, to him, since he uses it in his daily work and his achievement depends upon it It is hard for him to see that some of it may not be quite so important to others



History of the education program in general surgery at Massachusetts General Hospital from 1850 to 1950 From a length of one year in 1850 the program had reached a length of 14 years in 1940—requiring 4 years of college, 4 years of medical school, 1 year of internship, and 5 years of residency If no measures are taken to stop the trend, the program would reach a length of 18 years by 1970 (Reproduced with permission from The Hospital in Contemporary Life, edited by N W Faxon, Cambridge, Mass , Harvard University Press, 1949)

Careful scrutiny of many of the courses of the undergraduate medical years reveals much hidden detail that could be eliminated without losing sight of the principle that the details illustrate Does not the chemist teach the detailed steps of more enzyme reactions and demand knowledge of more formulas than are needed to illustrate the broad role of chemistry in medicine? I have already alluded to the curare drugs and the electrocardiogram Certainly there is no place in the undergraduate curriculum for those technical details of operations that the surgeon is so fond of teaching

Group teaching offers a ready solution to this problem of weeding out facts nonessential to medical education If teachers representing two, three, or four of our present departments join in giving lectures, seminars, and clinics, limits are automatically put upon the areas and facts being taught Such teaching is, of course, a form of integration Free discussion between faculty members in front of students opens less worthwhile material to criticism Checks are provided and perspective is gained We, as individuals, should subject ourselves to searching criticism, but it will be more quickly and soundly arrived at if our colleagues help us in this criticism and we in turn help them

Well-Founded Psychiatry—The second factor calling for change in teaching in the undergraduate medical curriculum is the recognition of the significance of the emotional factor in disease and the need for a more effective presentation of psychiatry The task will not be easy Mathews and Watkins[1] have said that a strong antagonism to psychiatry pervades many a medical faculty as it does the profession as a whole But the time has come to square off, face the issues, and not be led astray by ignorance or unwitting prejudice Emotional factors are to be seen and dealt with everywhere in medicine I am not speaking at the moment of the psychoses but of the gamut of conditions encountered in medicine and surgery These range from the psychosomatic diseases to the emotional factor in such everyday complaints as backache, fatigue, and the common cold

Put in other terms, the thinking mechanisms are an integral part of normal physiology and, when their balance is disturbed, the physiological disorganization may end up in somatic symptoms and changes Physiologically, there should be nothing mysterious about all this any longer The importance of getting this into our teaching is, of course, that unless treatment is directed at the origin it will be as ineffective as if the bacteria were disregarded in infectious disease

The science of psychiatry is, admittedly, in its infancy To deny it recognition in medical education because it is young and undeveloped would be as illogical as to have denied chemistry its place in medicine 80 years ago Yet many a clinician stated 80 years ago, and too many since have repeated, that chemistry and "all that science stuff" was the bunk

Sound concepts in psychiatry have emerged in recent years Experience in the teaching of these concepts, however, is still limited, and the psychiatrist lacks the confidence of the other teachers of medicine Group teaching, therefore, offers the best method of integrating psychiatry, not only into medical education but also into medicine itself

A number of medical schools are experimenting with this approach at the present time At the Harvard Medical School in 1947 the departments of medicine and surgery organized a collaborative course in "case taking" to introduce the student to the patient during the second half of the second year Three years later the psychiatrists asked to join in the teaching For the work with patients, the students were divided into groups of four or five The psychiatrist did not teach the group alone, but taught four sessions with the internist and four with the surgeon The patients seen were those on the medical and surgical wards, not those on the psychiatric ward

Opinion regarding the results was sharply divided A few of the physicians and surgeons, including senior and junior teachers, counted the time wasted Either they did not want to see what the psychiatrist had in mind or the psychiatrist did not make his objectives clear Others were enthusiastic, for they learned to see things they had not seen before, things commonly overlooked in medicine and surgery And the psychiatrist, forced by his colleagues to reduce his observations to simple terms, improved the organization of his thoughts A compromise was reached the joint sessions were not given up, but the number was reduced from eight to six

Hoard of Obsolete Therapies—The third reason for modifying the present approach to teaching the undergraduate phase of medicine is the growing hoard of obsolete modes of therapy Each generation sees new knowledge displace old therapies, but physicians are conservatively educated and cling overly long to outworn ideas As a third-year student in 1926, I was advised to learn the distribution of sciatic pain that spelled sacroiliac joint disease and for which surgical fusion of the joint was carried out As an intern, one of the most common operations I was assigned to perform was uterine suspension or ventral fixation How many of these outmoded and useless operations were performed after it became clear that they served no direct purpose? How many of today's hysterectomies and subtotal gastrectomies are really indicated? There is mounting evidence that the problems of the patients are often better treated in other ways than by such irrevocable operations

The teaching of a complicated problem such as peptic ulcer is best handled by group or integrated teaching Discussion and argument to and fro between internist, surgeon, and psychiatrist represents a winnowing by which the significant points are concentrated and outmoded concepts blown off with the wind The more frequent the discussion, the better the winnowing and the more the student learns

Issues and Dangers

What I have said thus far favors redeployment of integration and correlation as much for the education of the faculty as for that of the student The faculty needs to be jostled into a fresh look at medical education, and this is a good way

There are other seeming advantages to integrated teaching It is said that integration makes teaching more attractive and speeds the students' learning These premises are not necessarily true A dull teacher can be just as dull when teaching with others, and an inspired teacher just as scintillating when teaching alone A student may also learn just as fast or faster concentrating on a single aspect of a subject at a time What really counts at the showdown is each teacher's capacity to reach the student, to get him to organize his thinking constructively for the years ahead, and to inspire him

A principal objection raised to integrated teaching has been that it is too expensive The unnecessary duplication that group teaching eliminates does not make up for the additional cost of multiple teachers But good teaching is always expensive, and criticism, to be valid from an educational point of view, should be based on other issues Interference with faculty research, interference with the student's own responsibility for integrating, and the instability of an organization depending on voluntary collaboration are such issues

A danger of group teaching is that it may interfere with the free time of the faculty and thus with research Time schedules are necessarily a compromise No one teacher can arrange the schedule for his personal convenience and each may find his research time intruded upon Like other scientists, the medical scientist develops his most penetrating understanding when he is free and his thinking is uninterrupted The departmental structure has provided this uninterrupted time for research

Too completely integrated a course in medicine deprives the student of the responsibility for doing the integration himself As in the past, discoveries in the medical sciences will continue to be made in isolated areas If the student has not been obliged to integrate isolated facts into the whole of medicine, he will have lost an educational experience important later in his years of practice

The wholly integrated curriculum also denies the student the rewarding experience of studying an isolated science for its own sake Dr Atchley (see this issue, page 541) emphasized the value to the student of some experience in research, and this research is the opposite side of the coin Research is not done in a broad diffuse field, but deep in one area

A program of group teaching that depends upon voluntary collaboration is unstable, and this is the principal criticism of current efforts in integration A faculty committee without power of appointment depends upon good will for its effectiveness But good will is short-lived among prima donnas and busy people in general It needs constant refurbishing, and this is accomplished only by time-consuming watchfulness At Harvard, collaboration has repeatedly fallen apart since 1947 in the case taking course because no one has assumed disinterested responsibility At another medical school on the Eastern Seaboard, combined teaching clinics were instituted enthusiastically just after World War II Here too collaboration has not been without difficulty, and sometimes a clinic has passed by default to the department of medicine At Western Reserve, the several committees responsible for the new integrated curriculum are chaired, Dr T Hale Ham informs me, each by a vigorous teacher The chairman is responsible for recruiting the teachers for his special program from among the departments, the departments continuing as heretofore What will happen when the present chairmen retire remains to be seen, but without power of appointment the position of these chairmen is vulnerable from an administrative point of view The chairmen are in the position of beggars, they may recruit, but not command The great advantage of the departmental structure is, obviously, that the department head hires the talent needed, arranges a teaching schedule to fit, and knows that it will be carried out

Suggested Integration

It is my personal view that the present preoccupation with integration and correlation expresses a dissatisfaction with the organization of subject matter under the present curriculum and that we will make a mistake if we confuse this with a dissatisfaction with departmental structure per se If this be true, then we should redeploy our departments, and what I have in mind is this As it now stands there are too many departments Educational perspective has been lost by dismemberment This is certainly true of the clinical departments and probably also of the preclinical science departments No excuse can be offered for the separate departments of the surgical specialties riding off in different directions, teaching whatever comes handy, without planning All of them, including gynecology and obstetrics, should be reassembled into a single teaching department

Medicine also is too split apart, and in its integrated form it should include psychiatry One of the troubles with the teaching of psychiatry thus far has been that it has been given a chunk of the curriculum as if it were a separate subject, like ophthalmology or otology In a sense it is such a separate subject when it cares for the manic-depressive psychoses and schizophrenia If the words 'thinking processes of the patient" are substituted for 'psychiatry," then the subject is as inherent in medicine as cardiac function, and like cardiology belongs in the department of medicine The teaching of pediatrics, dermatology, and neurology should also be incorporated with the teaching of medicine

You might well ask why have I not advocated joining the teaching of surgery with that of medicine As a surgeon, I favor close relations between medicine and surgery, for we too practice medicine Integrating present-day surgery into medicine, however, is not comparable to integrating the thinking mechanisms and the emotional factors into medicine Aspects of surgery are as distinct and unfusible with most medical diseases as are the psychoses of psychiatry Like the psychoses, they are, at present, better studied and taught apart I, therefore, temper my idealism and shall be content for the time being with reintegrating surgery

The departments of physiology, pharmacology, and biochemistry teach aspects of function Would not the presentation be more effective as well as more efficient if they were joined in a division of physiology? The fecundity of research should be increased by the aggregation The growing field of biophysics would, of course, be included, indeed the division might well be headed by a biophysicist All members of the division, chemist, physicist, and physiologist, would share the responsibility for teaching general physiology The chemist would obviously emphasize chemical aspe and the physicist the biophysical

The introductory teaching of psychiatry should not be a separate course but should be included under the jurisdiction of the division of physiology. The physiologist will have to grapple with the thinking mechanism of the human being as he has with the reactions of the autonomic nervous system. The experimental physiologist Walter B. Cannon[2] described 32 years ago the bodily changes of fear, hunger, pain, and rage. In like manner, the physiologist of the future will study the higher centers of the brain—those peculiar to the human being. Productive starts have, of course, already been made. As far as present teaching is concerned, the physiologist will have to turn to the psychiatrist. Teaching together, the psychiatrist will bring such things as evidence of unconscious influences in thought and the physiologist correlations from established nervous system reflexes. This step of integrating introductory psychiatry with physiology will legitimize thinking as an honorable part of physiology and will free it of the unwarranted but delaying stigmas presently associated with the word psychiatry.

Anatomy and pathology could logically be united and bacteriology joined with them, for administrative purposes, in a division of morphology and microbiology. All three subjects deal with morphology. Much o pathology and bacteriology, particularly immunology is vividly functional and would secure to the entir division the spur so essential to spirited investigation.

Finally, these condensations or integrations shoul not destroy the strong advantages of the present departmental structure, and yet they should afford th needed means of pruning the facts taught, of introducing the thinking mechanisms into the pathologica physiology of disease, and of ridding the curriculum of obsolete therapies.

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THE UNDERLYING CAUSE OF UNREST IN UNIVERSITY MEDICINE

W. Barry Wood Jr., M.D., Baltimore

• *Medical science has been increasing rapidly in scope and complexity. Medical research has to enlist the services of the whole range of knowledge from surgery to mathematics, and medical practice depends on techniques ranging from physics to psychiatry. As a result, the duration and expense of medical education have increased greatly. The eventual solution of the basic problem must include some shortening of the course for selected medical students, some reduction of the now almost prohibitive cost of medical education, closer collaboration between liberal arts and medical science, and strengthening of the basic science departments of medical schools.*

The most striking characteristic of present-day medicine is its state of intense ferment. A climate of unrest pervades the profession. The uneasiness that is evident on all sides relates not only to our system of medical education but also to medical practice. What, may we ask, is the underlying cause of this unrest?

Some would doubtless attribute it to the upheaval in medical economics, which has been brought about by the rapid expansion of health insurance, and to the phenomenal growth of hospitals, which has stretched to the breaking point the available supply of professional personnel. Others might blame it on the increasing trend toward group practice and the growing strength of full-time staffs in the clinical departments of medical schools and hospitals. Still others would point to the changing pattern of disease, which has resulted from the control of infectious agents, the general increase in longevity, and the new health hazards of an industrial civilization.

In my opinion none of these factors is primarily responsible for the present state of ferment in the medical profession. Rather it would seem to me that the real cause of our present unrest is the rapidly changing dimensions of medical science. It is these that I should like to discuss very briefly. In so doing, I shall make analogies to the conventional dimensions of Euclidean geometry, namely, depth, breadth, and length. The Einsteinian fourth dimension of time will also be drawn into the discussion.

Depth in Medical Science

Let us begin by considering the depth of medical science. The rapidity with which this dimension is changing is best illustrated by a comparison of two outstanding examples of medical research: one reported from Germany approximately 100 years ago,[1] the other published by American investigators within the past few months.[2]

The first of these examples resulted from the prodigious labors of Prof. Carl A. Wunderlich, head of the medical clinic at the University of Leipzig. At the time that his meticulous investigations were begun, medical thermometry was an unknown subject. Although the thermometer had been discovered several decades earlier, it had never been systematically applied to the study of disease. Wunderlich, accordingly, began to make frequent measurements of body temperature on all patients admitted to his hospital clinic. Over a period of five or six years, he thus studied more than 25,000 patients with a wide variety of dis-

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Read before the 53rd Annual Congress on Medical Education and Licensure, Chicago, Feb. 11, 1957.

eases His carefully kept records revealed all the important relationships that are now known to exist between body temperature and the clinical course of the commonest forms of illness These relationships are clearly set forth in his now famous monograph, entitled Relationship of Medical Thermometry to the Course of Human Disease" Published in 1862, it had a profound effect upon medical practice all over the world From it clinicians learned for the first time the true value of the medical thermometer

As we look back upon Wunderlich's contributions we cannot help but be impressed by their significance Yet, measured by present-day standards, his studies were purely descriptive, though of vast importance, they were relatively superficial They made no attempt to get at underlying causes, they merely described the changes in body temperature that take place during illness And yet they stand today as one of the major medical contributions of the mid-19th century

Contrast the superficiality of Wunderlich's approach with studies recently reported in the *Journal of Experimental Medicine* relating to the genetics of individual mammalian cells [2] This work, carried out at the University of Colorado, has involved the use of a tissue culture method that makes possible, for the first time, the same kinds of studies on individual mammalian cells that bacteriologists have been making for years on various species of bacteria There are two keys to the new experimental technique The first involves the use of the enzyme trypsin to dissolve the proteinaceous intercellular cement that causes mammalian cells always to grow in sheets in tissue culture rather than as individual cells The second has to do with the biochemical conditions in the culture medium, which, it has been found, can be made optimal by the presence of a 'feeder' layer of metabolizing but nonmultiplying cells

Through these two ingenious innovations, it is now possible to grow single mammalian cells on semisolid mediums in ordinary Petri dishes Each cell placed upon the medium eventually grows into a colony easily visible to the naked eye The number of cells in each colony can be counted, and thus the rate of cellular division can be accurately measured The method is exactly analogous to that used in studying the reproductive behavior of bacteria Its discoverer, Dr Theodore Puck, has already applied it to an analysis of the mechanism of action of ionizing radiation upon human tissue cells Certainly in this age of atomic power there is no subject concerning which humanity is more in need of specific information

Puck's findings may be briefly summarized as follows First, he has shown that cells derived from a human cervical cancer (the so-called HeLa cells) are many times more sensitive to x-rays than are any other micro organisms that have previously been studied In fact, the amount of radiation needed to stop the multiplication of a single HeLa cell is so small that it could not possibly break more than a few chemical bonds in the cell This quantitative evidence strongly suggests that the radiation acts upon the cellular reproductive apparatus, namely, the gene-containing chromosomes

Secondly, the observed relationship between the dose of radiation applied and the percentage of survival of cells follows what is known as a typical "two-hit" curve This fact suggests that the x-rays act upon the chromosomes of the cell rather than upon any single gene

Thirdly, whereas small doses of radiation will cause only a delay in growth, somewhat larger ones cause the growth to cease after several generations When the dose of radiation is increased still further, multiplication stops immediately, but the surviving cells continue to grow in size and eventually become giant cells, which metabolize actively and are highly susceptible to virus action, in spite of the fact that they do not reproduce Finally, it has been shown that only with very large doses can complete disintegration of the HeLa cells be achieved

These remarkable studies of Puck vividly illustrate the increasing depth of medical science For here, in contrast to the workers of Wunderlich's time, is a medical scientist probing directly at the very secrets of life itself Such probings require a depth of knowledge in the life sciences that Wunderlich could hardly have dreamed of Surely the thesis that medical science has grown, and is continuing to grow, in depth need not be belabored further

Breadth in Medical Science

Equally impressive has been its growth in breadth If I may continue to refer to Puck's work for a moment longer, I should like to point out that he is by training a physical chemist, rather than a physician In carrying out the work that I have briefly described, he has had to make use of many disciplines

The following points in this regard are of interest First, the cells that he used in the tissue-culture experiments were originally derived from a cancer of the cervix in a human Second, in designing his tissue-culture method he borrowed heavily from conventional bacteriology Third, he made use of a biochemical method to separate individual cells for culture Fourth his knowledge of physics aided him in interpreting the biological effects of the x-rays Fifth, consideration of the quantitative effects of the x-rays involved the use of thermodynamics Sixth, his work led him primarily into a problem of genetics And, finally, a fairly complicated method of mathematical analysis was necessary to interpret fully the relationship between x-ray dose and cell survival

Here, then, is a single example of modern medical research in which the principal investigator has made use of information derived from surgery, microbiology, biochemistry, physics, genetics, and mathematics The possible practical application of these studies cannot yet be evaluated Suffice it to say that the studies may well prove to have a bearing upon the understanding of such basic biological problems as those of organ differentiation, the development of congenital defects, the nature of malignancy, the biological effects of radiation, and the intermediary metabolism of individual tissue cells

Many other examples might be cited to illustrate the fact that modern medical science encompasses all of the basic natural sciences But what of the social sciences? Certainly modern medicine involves them also No physician can fully understand his patients unless he is reasonably familiar with all of the possible environmental factors of illness Indeed, medicine can perhaps best be defined as a study of the interaction of man and his environment The important environmental variables that influence his well-being include not only physical and chemical factors but social forces as well Through psychiatry, particularly, modern medicine has become deeply involved in the social sciences, including such disciplines as social anthropology and social psychology That medical science is far broader today than it ever was before is evident to even the most casual observer

Length in Medical Science

Now you will ask, how in the world am I going to drag into this discussion the third Euclidean dimension, namely, length If you will allow me a little liberty with my analogy, I should like to introduce not only the concept of length but also that of time For to me the most important practical problem that confronts medicine today is that created by the excessive length of time required to train a modern physician

As the depth and breadth of knowledge in medical science have increased, the combined undergraduate-postgraduate courses in medical schools and hospitals have become longer and longer In this country, physicians and surgeons are considered well qualified to practice only after they have completed 4 years of college, 4 years of medical school, and an additional 3 or more years in a hospital—a total of at least 11 years after high school When two years of compulsory military training are added, many doctors of medicine have reached the age of 30 before they have finished their formal education Those interested in research have spent a number of their most promising years merely preparing for their careers This demanding period of training, with its inevitable economic strain, has become so long that it is beginning to discourage candidates from entering the field of medicine The relative number of students applying for admission to medical schools as compared to those applying for training in other professions, has been definitely on the decrease [3] Furthermore, there is good evidence that the excellence of practicing doctors is related, in part at least, to the length and quality of their postgraduate training as house officers Under the present prolonged curriculum of undergraduate medical education, many young physicians are forced, for economic reasons to enter private practice before they have gained adequate experience in hospital residencies Such short-cuts to practice, in this age of expanding science, deprive society of the maximal return on its investment in medical manpower

Comment

Is it surprising, then, that we as physicians sense within our profession a climate of unrest? The basic problems that face medicine today are the direct result of the changing dimensions of medical science These problems will not be solved overnight, nor will they be solved in the same way in every institution Their eventual solution will require wise and imaginative planning on the part of those involved in medical education, in the running of hospitals, and in the practice of medicine

In an attempt to meet them effectively in our own university, a committee of the medical faculty, working jointly with a small committee from the faculty of philosophy, formulated last year an extensive revision of the educational program of the school of medicine It would not be appropriate for me to attempt to outline in any detail the proposed plan for the medical school I would, however, like to state its long-range objectives They are, very briefly, as follows (1) to attract a greater number of talented students to the study of medicine by (*a*) shortening the course of training for selected students by two years and (*b*) cutting accordingly the now almost prohibitive cost of their medical education, (2) to break down the presently existing barrier between the liberal arts and the medical sciences, and thus not only liberalize the training of medical students but also bring the school of medicine into closer collaboration with the rest of the university, and (3) to add strength to the basic science departments of the medical school, on the grounds that these departments must, in the final analysis, provide the foundation of clinical medicine and public health Whether these ambitious objectives can be attained remains to be seen They stand at present as an impressive challenge to the faculty and students of the school of medicine

In conclusion, I should like to comment briefly on what we so casually refer to today as "university medicine' Its true significance is perhaps best illustrated by the following quotation from Sir Francis Fraser's prophetic lecture entitled 'The Changing Foundations of Medicine' [4]

> While clinical medicine continues to depend to an increasing extent on physiology and biochemistry, it is looking now for its inspiration and its methods especially to the work of the physicist, the chemist and the biologist Without an understanding of these sciences and their recent advances it is difficult to assess the value of much of the new work being carried out in clinical science and being applied to the practice of medicine In other words these subjects can no longer be regarded as *pre medical* in our scheme of medical education, but rather as *pre clinical* along with anatomy, physiology, biochemistry, pathology, bacteriology and pharmacology

Thus it is evident, as Professor Fraser so clearly states, that the changing dimensions of medical science are drawing medical schools closer than ever to their parent universities The degree to which this university bond is strengthened will determine in no small measure the future progress of medicine

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RESEARCH KNOWLEDGE AND ATTITUDES REFLECTED IN MEDICAL EDUCATION

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• *Teachers who are also competent as investigators are no longer confined to the basic science departments of medical schools but are found in the clinical departments as well Students can obtain desirable research experience by various informal and formal arrangements, which include programs of summer research or even a year of full time research in a laboratory of the student's choice after he has finished his preclinical courses The financial problems can be solved Grants to institutions that wish to further student research training are available through federal agencies and private foundations These permit the universities to pay students enough for time spent on research to compensate them when they forego higher paying work of other kinds*

Much that I might have said has already been stated by Drs Weiskotten, Whitehorn, and Atchley (this issue, pages 533, 538, and 541) It seems to me that their comments constitute a most eloquent plea for the furtherance of research training during the time medical students are enrolled in our medical schools They are also a testimony to the effectiveness of such teaching in furthering the ideals of the medical profession Consequently, I think now that it is unnecessary for me to defend the point of view that furtherance of our research training is a desirable thing

I might, however, reiterate some of the comments that have been made It might be recalled, for example, that Flexner said, in his report on medical education, that there is not, or ought not to be, any essential difference between the attitude of mind of the scientist and of the clinician Both should be people trained to observe, to reflect on their observations, and to draw tentative conclusions on which they then could base, respectively, an experimental procedure or a therapeutic regimen Following this intervention, a second period of observation, reflection, and conclusion should be undertaken In both the experimental and the clinical situation, the mental attitudes are identical

I would like also to reiterate what has been said earlier, that the clinical research undertaken by medical students during the time they are in medical school, especially in their clinical years, and the use of the methods evolved by and practiced in the basic science departments have formed one of the principal integrating forces in medical education The activities of such students has brought the basic science teachers closer to those operating in the clinical departments than perhaps any other single force operating in the medical educational institutions of today

So I take it, then, that we can begin with an agreement that research training for medical students is an admirable thing The questions remain as to how this training may be implemented most effectively and what special problems, financial, organizational, and otherwise, such a program entails for the medical schools These problems are interrelated with some others that concern both medical schools and medical practice, the problems of recruitment of teachers in medical schools and the dissemination of the results of research to the profession Obviously, the larger the number of trained investigators who emerge from medical schools the more rapid and the more skillful will be the introduction of future experimental results into clinical practice

Forty to 50 years ago laboratory teaching of the type now standard in all schools was recognized as a desirable thing Gradually, one school after another instituted laboratory teaching, with staffs of basic science instructors Courses were introduced that replaced the previous didactic exercises At first there was a small number of such schools A generation later, about the time that I began to be concerned with medical education, the teachers trained by those original schools had taken effective places in a larger number of institutions Today, with another generation, one finds that a large number of medical schools scattered all over the United States are now staffed by instructors who are thoroughly competent as investigators, and these investigator-teachers are no longer confined exclusively to the basic science departments They are to be found in the clinical departments as well There is now a continuing thread of interest in the investigative attitude and approach that begins from the moment the student enters the medical school and, in most instances, continues far beyond his graduation

As this increase and spread of talent has been accomplished, there has been a similar increase in the variety of investigative training undertaken by the different schools One of the most interesting and exciting things about American medical education is its capacity for producing a variety of people who can meet the needs of various local situations and take advantage of the opportunities to be found, while discounting the difficulties that arise in particular local settings

In any event, a number of tactics have been evolved in the medical schools Lectures are no longer the kind that used to be given For instance, in my own

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Read before the 57th Annual Congress on Medical Education and Licensure, Chicago Feb 11, 1957 field, anatomy, it had been the tradition for centuries that lectures were to be orations This is no longer true Lectures in most of the departments of anatomy today are concerned not so much with a recitation of fact presented as palatably as possible as with a discussion of the experimental aspects of the subject and an introduction of the experimental material in current journals, which has not yet been incorporated into the textbooks

Tutorial systems have been introduced in many schools, sometimes under quite informal guises and in other instances in semiformal arrangements brought about spontaneously by the desire on the part of the staff and of the students to engage in informal meetings to discuss experimental work

Research Opportunities

A number of schools have instituted programs of summer research This type of program developed more or less spontaneously, by virtue of occasional students approaching staff members and suggesting to them that they were interested in doing some of the kind of work with which the instructors were identified Out of this kind of casual, incidental, and spontaneous association there has arisen more recently a formalized program at many institutions, whereby funds have been sought to make it possible to encourage students to undertake such activities A few years ago the United States Public Health Service made it possible to obtain grants for this purpose, and this has immeasurably furthered the development of student research activity

The summer research program has been criticized by a number of people as being superficial because the period is too short for the best results It is certainly true that research training should not be superficial It is, however, also true that the job of capturing the imagination and attention of the student is one that must be undertaken at the appropriate time, and the appropriate time is always the time when the imaginative idea has occurred in the student's mind So, for purposes merely of introducing the student to the exceptional intellectual opportunities in medicine, I think this program is well justified

Still other opportunities are available Many institutions encourage occasional students to take off a year from their regular medical studies This year normally occurs after the completion of the preclinical courses The student is encouraged to spend the year doing full-time research in the laboratory of his choice In many institutions this device has worked very well indeed

In listing the support available for student research training, one should also mention the postdoctoral fellowship, which, although available after the student has received his M D degree, is still used at a time when he is a relative beginner in investigation Therefore, these fellowships afford an opportunity to undertake serious and sustained work in a laboratory under the direction of a skilled investigator

There are characteristics common to all of these programs, which have been developed in their various ways and in response to spontaneous demands—sometimes on the part of the student and sometimes on the part of the faculty, who require, to some degree, a close contact with students to help them acquire a sense of fulfillment in their occupations The programs all cost money They occupy a considerable part of the time of the faculty and of the student I believe these two factors have caused much difficulty in the advancement of the programs It is inescapably true that the medical curriculum is full, that a great many new facets of knowledge have been developed in recent times, and that clearing curricular time at the expense of completeness is not entirely justifiable Nevertheless, a way can be found, as a way has been found with these spontaneous programs, to make at least a beginning toward an improved method of launching students into investigative work And, as such programs develop, I am confident that clearance of the time from the curriculum will be possible to an even greater degree

The financial aspects of the program are not great at the present However, they are still troublesome With the present degree of research activity in medical institutions, in most cases it is possible for the laboratories to make places for the occasional students, or groups of students This represents a secondary use of facilities that have been accumulated primarily for other purposes Through the activities of the federal agencies and the private foundations, it has also been possible to obtain grants-in-aid These grants permit the universities to pay students enough for time spent in research during the summer, preventing the necessity of their obtaining higher-paying jobs

Specifically, I should like to mention here a new program that the Public Health Service is initiating An Experimental Training Grants Committee has been formed, with money available for grants to institutions that wish to further student research training This committee has adopted a policy that the furtherance of a variety of kinds of research is advisable In other words, there is no simple plan that could and should be enforced as the ideal plan for all medical schools

I mention this to indicate the awareness of the usefulness of this program on the part of the agencies interested in furthering medical research and education This information is evidence that the spontaneous evolution of the investigative approach to the teaching of medical students, bringing the student-teacher relationship into the research laboratory, has been continuing in the United States I am confident it will continue over the foreseeable future I have great confidence that, in this program, the advantages mentioned by Dr Weiskotten (see this issue, page 533) as accruing from the medical revolution of the past will continue to operate in the future generation

CLINICAL NOTES

SEFUL PRECAUTIONS IN RADIOGRAPHY FROM THE GENETIC POINT OF VIEW

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The recent report[1] of the National Academy of Sciences–National Research Council concerning the bio gical effects of atomic radiation was quite reassuring s to the fall out from nuclear weapon tests but raised n alarm in regard to the medical use of x-rays The edical use of x-rays should be reduced as much as is nsistent with medical necessity ' reads one of the commendations of the genetics committee of the uncil, headed by Dr Warren Weaver vice-president r natural and medical sciences of the Rockefeller oundation

As a consequence of this report, given out at a press nference[2] on June 12 1956, there may be some pub anxiety on the subject of x-rays This situation con rns not only radiologists but physicians in general, ho find x ray studies increasingly valuable and who w are expected to reconsider them in terms of their lue versus their danger

For example, it was advised by the genetics com ittee that *individuals up to the age of 30 years re ive* a total accumulated dose to the reproductive lls of not more than 50 r and that not more than an ad tional 50 r be given to individuals up to 40 years of ge For the population as a whole, the average ex sure of the reproductive cells to radiation (above e natural background) should be limited up to the ge of 30 years to 10 r

Also in June, 1956, the report of the British Medical esearch Council on Nuclear and Allied Radiation[3] as announced Its conclusions were much the same as ose of the National Research Council *in the United ates The British group found that the amount of* diation reaching the reproductive organs of the Eng h people through diagnostic radiology was much the ost prolific source of artificial irradiation and that the sk of genetic damage from test explosions of nuclear eapons was negligible They called for a review of dications for diagnostic x-ray procedures and a check of conditions under which they are carried t, *from* the radiation point of view They advised critical examination of the use of radiotherapy in nmalignant conditions Specifically, the danger of ducing leukemia following radiation of the whole dy was noted The evidence consisted of experi ents in animals, the incidence of the disease in iroshima and Nagasaki after the atomic bomb ex losions, and the increased number of cases of the sease after x-ray therapy in cases of rheumatoid ondylitis

Because of an appreciation of the value of the work on mutations and radiation by Muller,[4] I was able to anticipate some of these warnings and, some time ago, pointed out in THE JOURNAL[5] that two simple measures were effective in decreasing the radiation in x-ray procedures They are use of adequate aluminum filters in the radiographic machines and fluoroscopes and of lead-rubber protective shields placed over the genitals during radiography

Protective Shields for the Genitals

Since the publication of that paper, I have found that there was an objection to the use of the lead-rubber shield in that it tended to slip *somewhat and* might then obscure bony structures of interest A change was made to plain sheet lead of 1 5-cm thickness This was satisfactory, because it could be molded readily to fit over the genitals and remained in place during the examination When these shields were *placed on male patients, no radiation could be meas*ured on the r-meter placed on the scrotum in various x-ray procedures Therefore, the lead shields have convenience and effectiveness to recommend them in the case of most patients in veterans and military hospitals as well as in 50% of the patients in general hospitals (This is not readily applicable for female patients)

Adequate Filtration

The value of adequate filtration in x-ray diagnostic equipment has been shown in the past by eminent authorities[6] in radiology and physics However, my discussion[5] of the subject was made brief and nontechnical in order to influence physicians who, although not experts in radiation, use x-ray machines and fluoroscopes Manufacturers of x-ray equipment are now increasingly installing filters in effective *amounts* (3 mm Al *in fluoroscopes* and 2 mm in radiographic machines) rather than the traditional 0 5 mm Al, which might be called token filtration

A question asked at the press conference[2] at which the National Research Council report was given out deserves a serious answer The question was In view of the large number of people who receive some radiation in this way, should the chest x-ray survey program for tuberculosis be stopped? The experts at that time did not give a direct answer In order to have the basis for an answer, it is necessary to know how much radiation the gonads receive in the course of a chest x-ray

Measurements of such radiation were made at the Veterans Hospital, Hines, Ill, with the use of the conventional chest film and a survey-type photoroentgen

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From the Department of Radiology, Veterans Administra on Hospital chest examination (two 'stereo" films) A Victoreen r-meter was used for making the measurements This was a freshly calibrated instrument having a scale reading to 250 mr in steps of 5 mr, thus permitting readings to the nearest 1 mr, and made for use in the 60-to-400-kv range When the exposure was to be made, the roentgen meter, clamped on a pedestal, was placed between the thighs in contact with the posterior aspect of the scrotum There was a 2-mm Al filter on the radiographic tube A high-kilovolt technique (110 to 125 kvp) is routinely employed for chest radiography, and a thin stationary grid is placed between the patient and the cassette Slight variations in exposure factors, because of differences in the size of the patients, will not be discussed in detail here The measurements obtained are shown in table 1

It will be noticed that the large cone placed on the radiographic tube did not decrease the radiation on the gonads (table 2) A smaller cone of the 'double-diaphragm' type was then placed on the tube In no case was any radiation obtained on the scrotum when this cone was used

The large radiographic cone first used had an aperture of 11 5 cm (diameter) The small cone was of the "double-diaphragm type and had an aperture of 8 cm The manufacturer states that it contains more than the usual amount of lead, being designed for radiography up to 125 kv The small cone is now used exclusively at the Veterans Hospital in Hines, Ill At the 72-in distance, the transmitted beam fully covers the 14-by-17-in film

It is evident, therefore, that the use of a cone will considerably reduce radiation on the gonads in chest roentgenography, but it should be noted that a large cone at such a distance is no better than no cone at all The cone has to limit the beam adequately to be of any use

Comment

It is probably wise to reappraise such things as routine preemployment x-rays of the lumbar spine in the absence of symptoms[7] Reconsideration is also due for such occasional practices as very extensive roentgenologic examinations in the pelvic region, including the taking of multiple views, the habitual taking of stereoroentgenographs, and the frequent repeat x-rays on patients on a time schedule rather than on the basis of specific individual need

TABLE 1—*Amount of Radiation to Gonads Received in Course of Chest X-ray in Three Male Patients*

	Ordinary Chest Film r				Photoroentgen Examination (Two Stereo Exposures) r	
	No Limiting Cone		Large Cone			
Case No	Chest	Scrotum	Chest	Scrotum	Chest	Scrotum
1	0 030	0 011	0 036	0 011	3 0	0 020
	0 0[illegible]2	0 018	0 067	0 009	4 0	0 016
3	0 078	0 019	[illegible]	0 0[illegible]2	3 6	0 018

A relevant fact concerning x-rays in this region is that the radiation reaching the scrotum in an ordinary x-ray (anteroposterior and lateral views) of the lumbosacral spine is 6 5 r with no filter and 1 7 r with a 2-mm filter[5] It is to be remembered that, in the male patients studied, a lead shield over the scrotum eliminated the radiation, so that it did not register on our milliroentgen meter

TABLE 2—*Amount of Radiation to Gonads Without Limiting Cone and with Large Cone on Radiographic Tube in Course of Chest X-ray in Three Male Patients*

		Dose on Scrotum r	
Case No	Dose on Chest r	No Cone	Large Cone
4	0 030	0 021	0 021
5	0 030	0 012	0 015
6	0 038	0 020	0 019

* No dose with small cone

Such data as those given above should be available for various x-ray examinations They should be studied by all those using and recommending x-rays, in the light of current interest in the relation of radiation to genetics

Summary

The current increased interest in radiation due to nuclear weapons has stimulated a new look at radiation in diagnostic radiology from the genetic point of view Ionization chambers placed on the scrotum can be easily used to measure approximately the amount of radiation reaching the genitals in diagnostic procedures in male patients The radiation is reduced significantly by the use of filters and limiting cones in radiographic machines and fluoroscopes Cones are without value unless they are small enough to keep the direct beam away from the genitals In male patients, lead shields on the genitals reduce gonadal radiation to insignificant levels

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Mr Wallace Bergeron Chief Technician, X-ray Therapy Department Veterans Administration Hospital, Hines, Ill, made the radiation measurements used in this study

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COUNCIL ON FOODS AND NUTRITION

Report to the Council

The following paper was presented at the symposium, 'The Relation of Proteins and Amino Acids to Human Nutrition,' in Los Angeles, May 21, 1956 This symposium was sponsored by the Council on Foods and Nutrition, with the cooperation of the Los Angeles County Medical Society and the School of Medicine, University of California at Los Angeles This report is the fourth of the series, which will be available in monograph form

Philip L White, Sc D , *Secretary*

KWASHIORKOR IN CHILDREN AND ITS RESPONSE TO PROTEIN THERAPY

Nevin S Scrimshaw, M D Ph D , Moisés Behar, M D , Guillermo Arroyave, Ph D , Carlos Tejada, M D
and
Fernando Viteri, M D , Guatemala, Central America

In its severe form, protein malnutrition is most frequently seen today in young children Under the name of *sindrome pluricarencial de la infancia* (S P I) in the Spanish-speaking countries and kwashiorkor in most other parts of the world, a well-defined protein deficiency syndrome is common in children 1 to 5 years of age in most underdeveloped areas of the world The condition begins to develop as soon as the quantity of protein contained in the mother's milk becomes inadequate for the needs of the growing child The amount of protein obtained by the nursing infant becomes inadequate sometime after the 8th to 10th month This inadequacy steadily increases until the time of weaning, when the child is likely to receive a diet containing a high proportion of carbohydrate and little or no protein of animal origin During this period, the growth and maturation of the child are greatly slowed If they are fortunate, children in the lower economic groups in underdeveloped areas pass through the pre-school period with little additional external evidence of damage and resume more normal growth and development when they reach school age Unfortunately, many of these children with underlying protein malnutrition do not escape more serious consequences, they develop the severe protein malnutrition snydrome of kwashiorkor and die from it

Factors Associated with Development of Clinical Kwashiorkor

Any one of several factors may precipitate the acute episode of kwashiorkor in a child already suffering from malnutrition [1] One of the commonest is infectious diarrhea, which not only interferes greatly with the child s absorption of nutrients and increases his loss of body proteins but also may cause the mother to further restrict his diet Frequently the child is given a starchy solution such as rice water or corn starch gruel containing essentially no protein, and strong purgatives are administered to rid him of the worms that the mother mistakenly believes are causing the diarrhea With such treatment the child is likely to develop frank symptoms of kwashiorkor in two to four weeks

Other precipitating causes of kwashiorkor in an already malnourished child may be an attack of some infectious disease such as measles or whooping cough, an emotional shock such as the death of a parent, or a worsening of the economic condition of the family At times the basic diet is so poor that the child gradually develops kwashiorkor without any other identifiable precipitating cause

Characteristics of the Acute Syndrome

Clinical Findings —Retarded growth and development as initial clinical characteristics of the syndrome have already been mentioned Psychic changes include profound anorexia, apathy, and, frequently, irritability Muscle tone is decreased, and edema may often be severe The skin changes include atrophy of the skin appendages, areas of hyperkeratosis, and altered pigmentation The skin lesions are suggestive of those of pellagra but are not confined to areas exposed to sunlight Secondary infections may result in the development of extensive excoriations The hair is likely to be thin, brittle, and pale and sometimes acquires a reddish cast It is frequently sparse and usually can be pulled out easily Changes in the nails often parallel those in the hair Various other clinical signs and symptoms associated with concomitant specific vitamin and mineral deficiencies may be present but vary from one region to another

Pathology —The pathological changes found at autopsy in fatal cases are often so severe that it is inconceivable that they have come about in the relatively short period of time after either the occurrence of a precipitating cause or the onset of the clinical signs and symptoms [2] This is taken as further evidence for belief in the widespread existence of an underlying severe malnutrition in underdeveloped areas, even in children who do not manifest the clinical characteris-

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From the Institute of Nutrition of Central America and Panama (INCAP) tics of kwashiorkor In addition to the lower body weights, most of the organs are grossly underweight, and a monolobular reticulosis of the liver that has taken a relatively long time to develop is seen in about 20% of the cases

In acute kwashiorkor, the liver is enlarged and shows a fatty change that is often so severe it involves almost every cell and obliterates the lumen of the sinusoids In some cases the pancreas may be enlarged rather than underweight, but the pancreatic acini always show moderate to severe atrophy and a reduction in the number of secretory granules Fibrosis is likely to be present in the pancreas and may be severe Atrophy of the intestine and stomach occurs, it may be very pronounced and associated with a gross dilatation of these organs

The skin and skin appendages show a marked degree of atrophy, as do also the follicles of the thyroid In the latter case, there is a loss of colloid substance and an increase in interstitial fibrosis The skin shows hyperkeratosis and parakeratosis over the area of gross lesions Atrophy and loss of lipids are apparent in the adrenal cortex, and fatty degeneration of the kidney tubules may be present

Hematological Findings —The characteristic anemia appears to be normocytic or mildly macrocytic, and the bone marrow shows relative hypoplasia of the erythroid series [2a] When hookworm or other conditions producing iron deficiency are present, the child with kwashiorkor may have a hypochromic microcytic anemia with no hypoplasia of the marrow

Biochemical Alterations —The positive biochemical findings have been reviewed recently [3] They include the low activity of the serum enzymes amylase, esterase, lipase, and alkaline phosphatase as well as of the enzymes lipase, amylase, and trypsin in the duodenum Total serum protein and albumin levels are both greatly lowered, although the relative amounts of alpha$_1$ globulin and gamma globulin seem to be somewhat increased The values of serum vitamin A, carotene, and vitamin E tend to be very low, those of riboflavin are within normal limits, whereas those of ascorbic acid are usually lowered in the acute disease Blood serum calcium and phosphorus levels are little altered, but low serum levels have been reported for cholesterol, phospholipids and urea, whereas the total serum lipid levels and the ratio of free to total cholesterol appear to be high Kwashiorkor is also associated with low blood serum levels of potassium,[4] but this may be due primarily to the diarrhea

Physiological Changes —Nitrogen retention has quite naturally received considerable attention because kwashiorkor develops as the result of a prolonged negative balance All workers agree that the nitrogen balance becomes strongly positive whenever protein is given in the acute phase of the disease Children with kwashiorkor also retain a higher proportion of the total nitrogen of the diet than do well-nourished children [5] The only information on amino acid metabolism shows a reduced excretion of threonine in the urine and higher than normal ratios of isoleucine to leucine and of phenylalanine to tyrosine [6] Fat retention is lowered,[7] and steatorrhea is usually encountered

Altered kidney function is indicated by the frequency of oliguria, and altered cardiac function is indicated by electrocardiographic changes The latter changes include a profound diminution in the amplitude of all deflections and occasional prolongation of the QT interval [8] There is no information on initial endocrinological changes, unless the oliguria is considered to be caused by a failure of the liver to destroy antidiuretic hormone as is suggested by Gopalan [8]

Effect of Protein Therapy

The foregoing review of the characteristics o kwashiorkor has been intentionally brief, since mor complete recent reviews are available [3] The princip purpose of this article is to summarize the effects protein therapy on these initial findings

Disappearance of Clinical Signs —When dried ski milk or half-skim milk alone is given, most of t findings show rapid change In the first 7 to 10 day if the child responds to therapy, the apathy and i tability largely disappear and the child's appe returns Edema largely or entirely disappears, the s lesions clear up obviously, new hair and nail substa begin to grow with good color and texture, and muscle tone improves

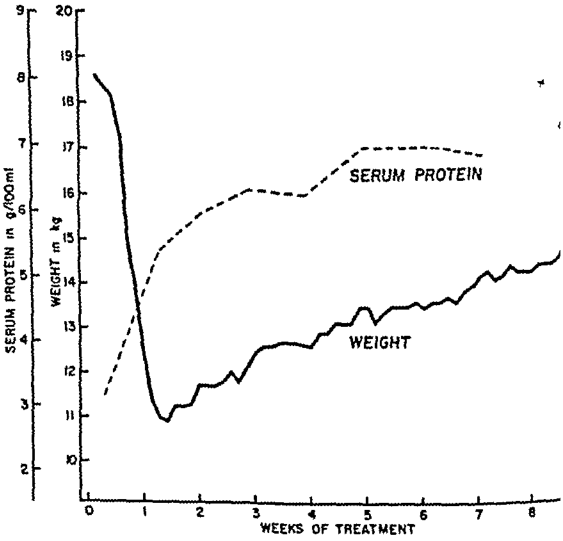

Fig 1 —Serum protein and weight changes in recovery f kwashiorkor in girl 6 years, 6 months old

Under ideal conditions, the weight drops rapidly edema is lost but then begins to climb (fig 1), the diarrhea stops promptly The remarkable cha in appearance when severe edema is lost is illustra by the child in figure 2 The boy in figure 3 shows recovery, which occurred in 10 weeks of dietary tre ment In less favorable cases, possibly associated w cross infections caused by poor hospital conditi and lowered resistance, intermittent diarrhea cont ues for many weeks, and the child fails to gain weight during this extended period

Considerable evidence is available to suggest that with reasonable isolation of patients and care to avoid cross infections, most children who recover will do so without the long stationary period in weight It should be added that some children fail to respond to any kind of therapy grow rapidly worse and die In these patients the biochemical and pathological changes described earlier seem to have progressed too far to be reversed Fortunately these cases are in the minority

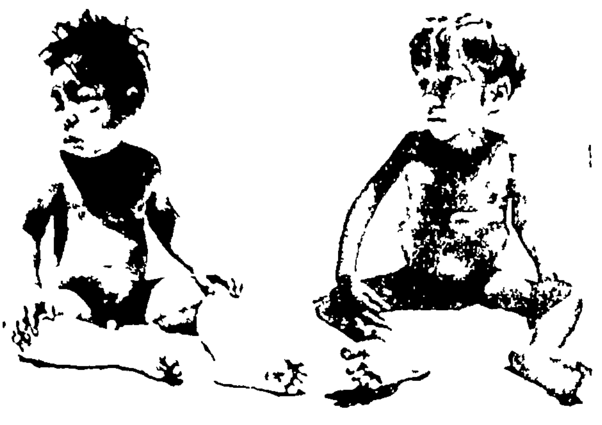

Fig 2—Boy 3 years 10 months of age showing (*left*) kwashiorkor with severe edema Five weeks later (*right*) when edema has been lost, considerable degree of undernutrition is revealed

Hematological Response—When the mild macrocytic anemia of kwashiorkor is uncomplicated by hookworm or other conditions directly affecting iron metabolism, it responds rapidly to the administration of milk alone Figure 4 illustrates the prompt reticulocyte response and rapid increase in red blood cell count In our cases however, if supplementary iron is not given, a microcytosis develops that can be corrected by the oral administration of iron, which will produce a second reticulocyte response These changes are accompanied by a renewal of erythroblastic activity in the bone marrow When microcytic anemia is present initially, supplementary iron must be given from the beginning if a satisfactory hemopoietic response is to be obtained

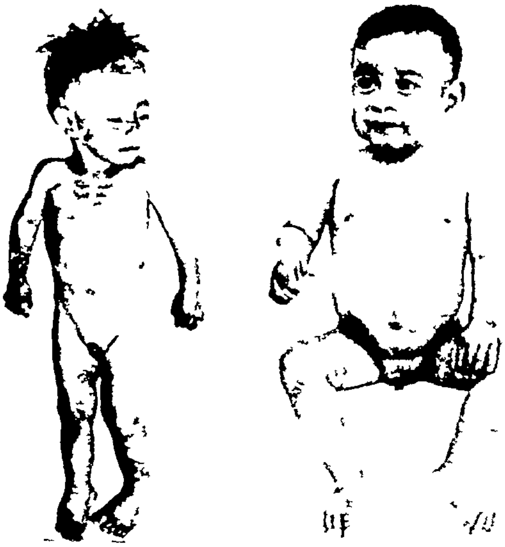

Fig 3—Boy 2 years, 3 months of age showing edema skin lesions, and other characteristics of kwashiorkor (*left*) Ten weeks later (*right*) good recovery occurred with dietary treatment alone

Pathological Changes—Of the reversible pathological changes, only those in the liver can be studied conveniently From both autopsy and biopsy specimens we know that nearly all the liver cells contain excessive fat in the acute stage of the disease and that the sinusoids are obliterated by the swelling of the cells Within 3 to 14 days of optimal dietary treatment, this extra fat disappeared in our cases Figure 5 shows the microscopic appearance of a biopsy specimen of the liver, with partial disappearance of fat, obtained five days after admission in a child with an acute case of kwashiorkor Since fat disappears in the opposite order in which it is laid down, the cells in the center of the lobules are the first to lose their fat In most cases, when stained with a reticulum stain such as Gomori, the liver shows a mild to moderate reticulum fiber proliferation This persists for as long a period of time as we have been able to follow cases, at present a maximum of 15 weeks (fig 6)

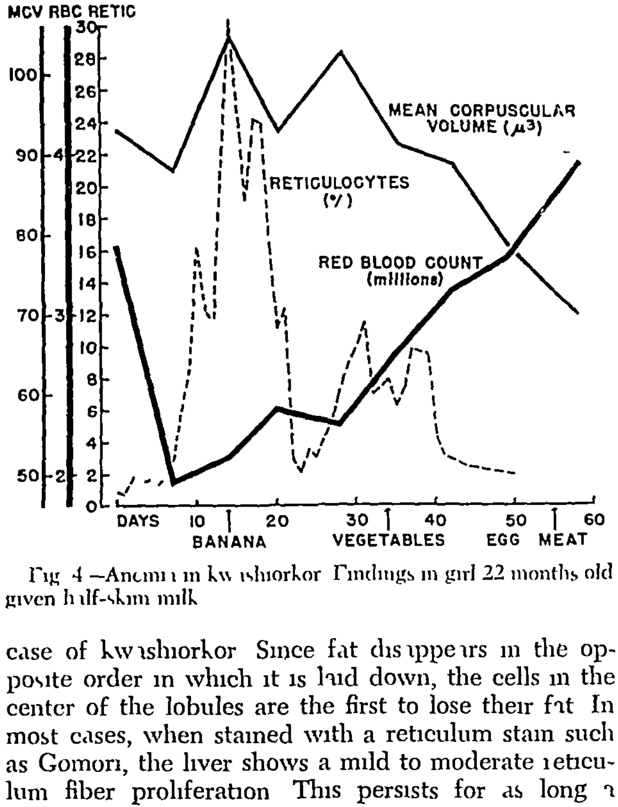

Fig 4—Anemia in kwashiorkor Findings in girl 22 months old given half-skim milk

Associated with this reticulum fiber proliferation is an increase in the number of histiocytes in the portal spaces In some cases a thickening of the walls of the central veins that stains for reticulum and sometimes for collagen is noted The thickening is different in type from that described by Bras[9] under the name of veno-occlusive disease In none of our cases has a true hepatic cirrhosis been found The possible relationship of the reticulum fiber proliferation to fibrosis in the adult is unknown

Biochemical Recovery—Changes in levels of certain biochemical substances occur during recovery

Serum Protein The prompt response in most cases of kwashiorkor to a diet rich in protein is illustrated for one individual case in figure 1 The average increase in serum protein and albumin levels with adequate treatment is shown in figure 7 A rise in serum albumin from 1 7 to 3 1% and in total serum protein from 3 8 to 6 3% in only two weeks illustrates well the rapid recovery that can take place

Serum Vitamin Changes As might be expected, changes in some of the serum vitamin levels are profound Figure 8 shows the very low levels of vitamin A found in patients upon admission and the gradual rise that occurred as treatment proceeded This rise was greater when 5 000 units of vitamin A were given daily for the first two to three weeks in addition to the 800 to 900 units contained in the daily diet The oral administration of a single dose of 75 mg of vitamin A produced no effect on serum vitamin A levels in children admitted with kwashiorkor [2a] However, only five days after milk therapy was begun, this oral dose produced a prompt and significant increase in the serum levels of vitamin A The serum carotene and vitamin E levels, also initially low, rose with treatment

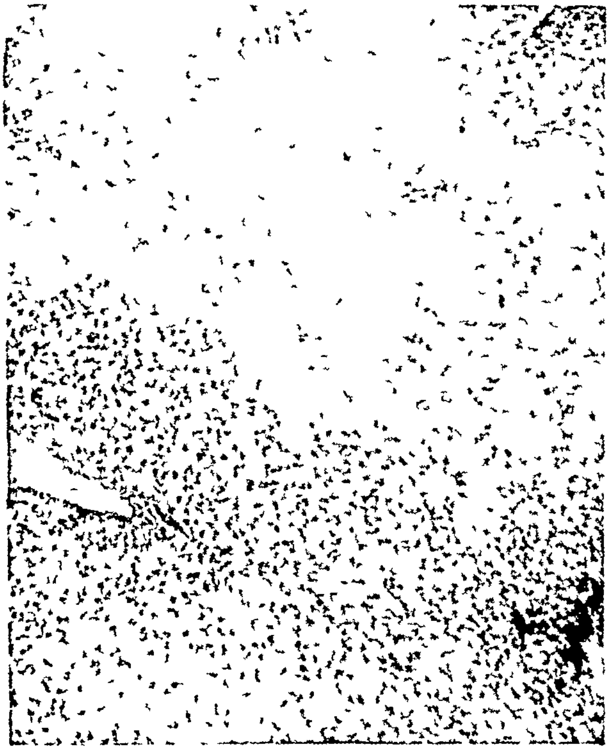

Fig 5 —Microscopic appearance of liver in boy 3 years of age with acute kwashiorkor after five days of dietary treatment This section shows disappearance of fat droplets in cells of central portion of lobules On patient's admission all of liver cells appeared to contain fat (hematoxylin and eosin stain)

In general, we have not found the amount of water-soluble vitamins to be greatly lowered in serum The data summarized in figure 9 show a rise with treatment in the values for both total riboflavin and the so-called free riboflavin fraction We find that ascorbic acid values also rise with treatment

Serum and Tissue Enzymes The rapid rise in the activity of serum enzymes with the feeding of good quality protein is striking Figure 10 illustrates the increase in serum amylase level that takes place with treatment Esterase and lipase show similar responses [3a] All three enzymes have their principal origin in the pancreas and therefore are useful indicators of the altered pancreatic function in the syndrome and of the recovery in response to treatment

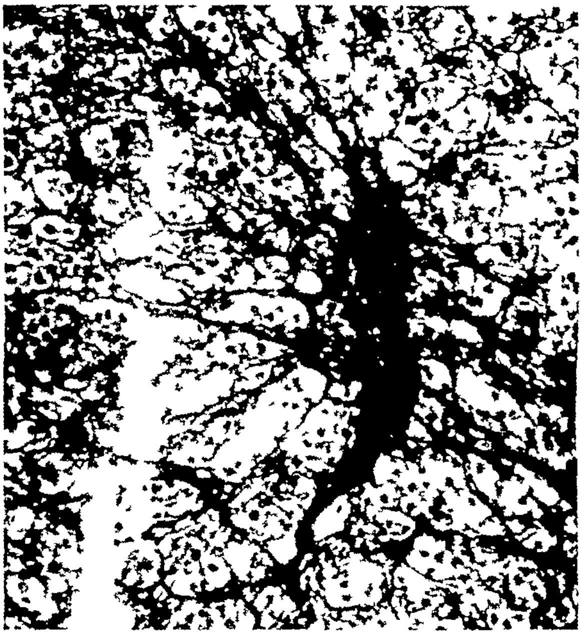

Fig 6 —Microscopic appearance of liver in boy 5 years of age admitted to hospital with acute kwashiorkor and given four weeks of dietary treatment This section shows extensive reticulum fiber proliferation commonly seen after clinical recovery (Gomori stain)

Figure 10 also shows the rise in levels of alkaline phosphatase and pseudocholinesterase (a nonspecific enzyme that hydrolyzes not only esters of choline but a variety of noncholine esters as well) We have found the latter to be the most sensitive indication of satisfactory response After an initial drop, alkaline phosphatase level shows a similar rise with treatment [2a]

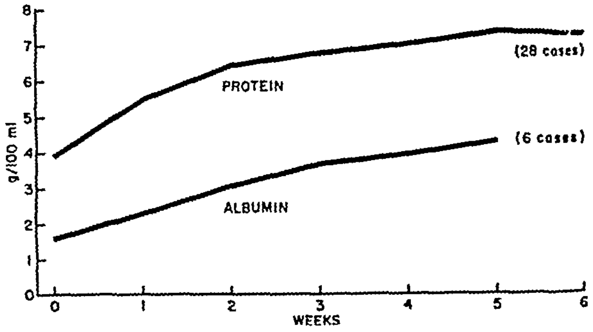

Fig 7 —Response of serum protein and albumin levels to diet therapy in kwashiorkor

Just as this syndrome of protein malnutrition is associated with a widespread decrease in the activity of other enzymes, so is there an equally widespread and rapid recovery Waterlow[10] has shown, through a study of liver biopsy specimens from malnourished children in Gambia, British West Africa, that the pseudocholinesterase activity increases more than 100% when a milk diet is given Although cytochrome oxidase and lactic dehydrogenase levels are not affected, the level of transaminase in the liver also rises[10] The alkaline phosphatase activity of liver biopsy tissue increases in kwashiorkor and decreases with treatment The duodenal amylase, lipase, and trypsin levels rapidly return to normal in the first 10 days of treatment[2a]

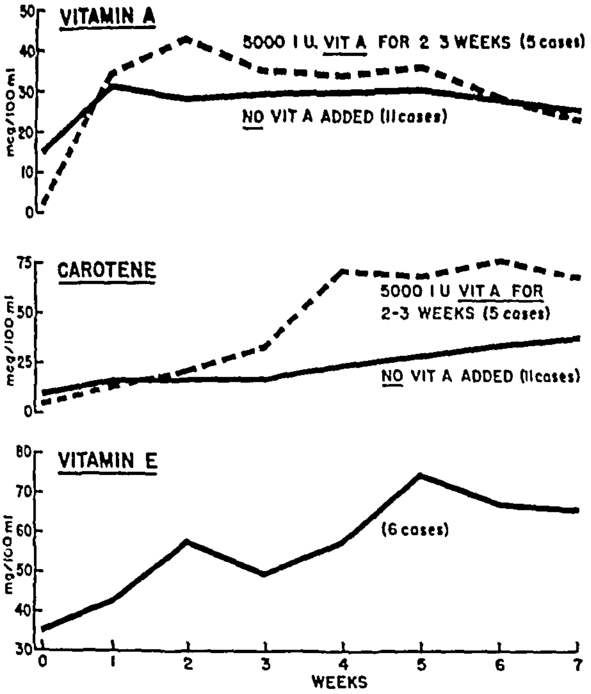

Fig 8 —Response of serum carotene and vitamins A and E levels to diet therapy in kwashiorkor

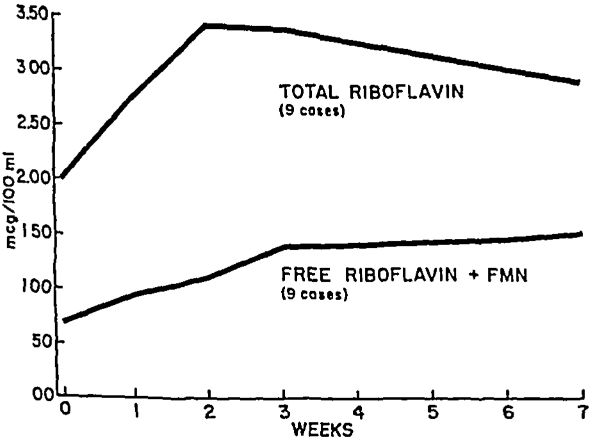

Fig 9 —Response of serum riboflavin level to diet therapy in kwashiorkor

Other Biochemical Changes Serum cholesterol values rise rapidly with treatment,[11] and the ratio of free to total cholesterol falls rapidly in the first two weeks The low-average serum blood urea levels rise to values that exceed the normal level[10]

Physiological Changes—It has already been mentioned that nitrogen balance is strongly positive in the early phases of recovery and nitrogen retention is high In the four children we studied for such data, we found that retentions range between 14 0 and 52 9% even relatively late in recovery When the child reaches normal weight for height, however, the retention of nitrogen drops sharply regardless of the amount absorbed The percentage of dietary fat retained decreases in the acute phase of the protein deficiency but rises with treatment[7a] In our own studies fat retention is variable but does not return to normal even late in the recovery period[1] The electrocardiographic changes of the acute phase referred to before also disappear early in recovery[8] We have recently noted that, when a patient is admitted, the size of his heart is decreased relative to the size of his chest, the heart increases in size with treatment (fig 11)

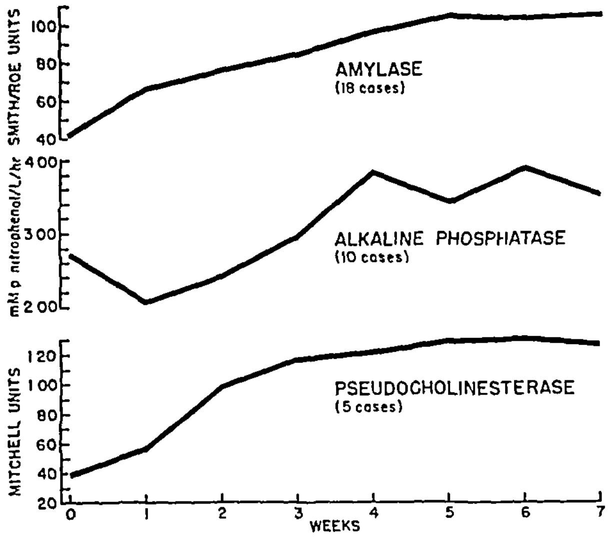

Fig 10 —Response of three serum enzyme levels to diet therapy in kwashiorkor

A curious set of findings is occasionally encountered relatively late in recovery These findings were originally described by Gomez and his group in Mexico under the name of the 'recovery syndrome'[12] The liver increases in size, and collateral circulation often is plainly evident, suggesting cirrhosis An increase in eosinophil count is observed, and hypertrichosis also may develop It has been suggested that this syndrome is caused by a recovery of pituitary function prior to the recovery of other endocrine organs, with a resulting imbalance We have occasionally seen this in mild form in Central America, and scattered cases have been reported from other parts of the world We suspect that this recovery syndrome is aggravated by a high caloric intake with a relatively low proportion of protein

Relation to Caloric Deficiency

A discussion of protein malnutrition would not be complete without pointing out that it is usually associated with a recent or long-standing deficiency of calories The cases in which there is a loss of subcutaneous fat and muscular wasting, initially obscured by the edema, are spoken of as the marasmic type of kwashiorkor because they combine degrees of both marasmus or starvation and protein deficiency In general, these cases are clinically more severe and require longer hospitalization Since most of the cases of kwashiorkor occurring in Mexico, Central and South America, India, South Africa, and the Belgian Congo are of this type, it is sometimes difficult to separate the effects of protein and calorie deficiency However, in Jamaica and Uganda, where children may develop kwashiorkor without the loss of subcutaneous fat and muscular wasting, and despite the consumption of an abundance of calories, the changes that have been described as characteristic of kwashiorkor also occur

Comment

A relative deficiency of protein of high biological value is the outstanding common finding in the diets of children in whom kwashiorkor develops Furthermore, the principal characteristics of this disease disappear promptly when skim milk alone is given It is given initially in a dilute form to provide a relatively low level of protein until it is easily tolerated by the patient The concentration of milk is gradually increased until 4 to 8 Gm of protein per kilogram of body weight is given by the fifth day, followed by gradual addition of other foods to supply a balanced diet rich in protein Parenteral therapy is usually unnecessary

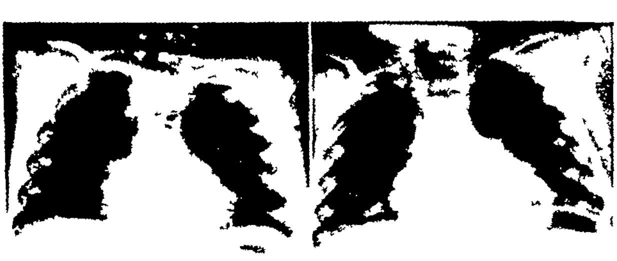

Fig 11 —Anterior posterior roentgenogram of thorax in boy 2 years, 7 months of age upon admission (*left*) and with initial recovery well advanced after 14 days of dietary therapy (*right*) Photographs indicate an increase in relative size of heart with treatment

These observations form the basis for considering kwashiorkor to be primarily a manifestation of severe protein deficiency Further support has been given to this concept by the work of Brock and others,[13b] who have demonstrated that vitamin-free casein alone will bring about an "initiation of cure" including disappearance or improvement of all of the major signs and symptoms A mixture of 18 amino acids, as in casein, with the addition of glucose, a mineral mixture, and all known vitamins was also effective Removal of the vitamins did not seriously affect the rate of initiation of cure Hansen and co-workers[13b] have also reported satisfactory initiation of cure with a mixture containing the 10 essential amino acids plus tyrosine, minerals, vitamins, and glucose When the vitamins were omitted from this mixture, the rate of initiation of cure was distinctly retarded

A remarkable thing about kwashiorkor is the dramatic rapidity with which it usually responds to a diet rich in protein It would be suspected, a priori, that children with atrophied gastrointestinal walls, whose duodenal enzyme activity is reduced to negligible levels, would be unable to use large quantities of protein at the time of admission to the hospital with acute kwashiorkor Nevertheless, the response to protein administration is so rapid that a few days later enzyme activities have returned to normal[14] and the absorption and retention of protein given in relatively large quantities is high[15] The response of serum vitamin A levels to vitamin A administered orally, on admission and after four days of treatment, indicates that the ability of the child to absorb fat-soluble vitamins shows a similarly rapid recovery[23]

Our own experience in Central America and that of workers in other parts of the world demonstrates conclusively that the preferred treatment of kwashiorkor is not the parenteral administration of protein hydrolysates, vitamins, or other medical preparations but rather the oral administration, by stomach tube if necessary, of adequate quantities of milk or other sources of protein of good quality There is reason to believe, from our work and that done in Coonoor, South India, and in Kampala, Uganda, that suitable vegetable protein mixtures are also satisfactory for this purpose[16]

Occasionally, whole blood transfusion may be deemed necessary to save the life of the child, but it is our experience that, as confidence in simple feeding is gained, the decision to resort to blood transfusion is rarely made Hansen and Brock[4] have emphasized the importance of fluid and electrolyte depletion, particularly of potassium, in diarrheic children with kwashiorkor They recommend routine oral administration of an electrolyte solution containing potassium (Darrow's solution) with glucose for the first 24 hours, before starting to feed protein

The prevention of kwashiorkor must be a goal of public health services and international health agencies, but the detailed study of the characteristics of the syndrome and its response to protein therapy has been enormously helpful in emphasizing the need for prophylaxis This advancement should also serve to lessen the initial cost of hospital treatment of the condition, by eliminating costly parenteral therapy from the procedures routinely employed, and to shorten the hospital stay, by protecting the malnourished child from the cross infections of the general pediatric ward

Summary

The characteristics of severe protein malnutrition (kwashiorkor) in children include retarded growth and development edema anorexia, apathy and sometimes irritability, hair and nail changes, skin lesions diarrhea, anemia lowered serum protein and *albumin* lowered serum levels and absorption of fat soluble vitamins, lowered serum levels of pseudocholinesterase, amylase, lipase and alkaline phosphatase reduced duodenal enzyme activity, fatty liver, reduced heart size, and lowered electrocardiographic voltages All of these return to normal or improve greatly within the first 7 to 10 days of protein therapy, apparently even when this therapy is given in the form of vitamin-free casein Suitable vegetable protein mixtures may also be used

Children exposed to cross infection in open pediatric wards require longer hospitalization for satisfactory recovery The associated deficiency of other nutrients can be corrected by diet alone except when severe iron deficiency caused by malaria or hookworm is present, in that case, supplementary iron should be given orally There is no convincing evidence that vitamin B_{12}, lipotropic substances, or enzyme preparations have a place in the treatment of kwashiorkor

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High Altitude Polycythemia —Studies of high-altitude polycythemia have been carried out largely in the Peruvian Andes, where many people live at altitudes of more than 12,000 feet When normal persons move to high altitudes, they undergo a period of acclimatization marked by an initial hemoconcentration, with increased values for hemoglobin and the cell-volume per cent (hematocrit) and an increase in the number of erythrocytes, there is no immediate increase in the total erythrocytic mass, although this does occur some days later Rates of turnover of plasma iron, however, increase greatly in the first 12 hours at high altitudes This occurs more quickly than can be observed in studies of the peripheral blood and bone marrow Reticulocyte counts reach a peak in about a week Natives living at high altitudes show increased total erythrocytic masses, with normal plasma volumes The rates of turnover of plasma iron are not so high as those of persons recently arrived in the region On descent from high altitudes, a pronounced decrease occurs in the rate of erythropoiesis (as indicated by decrease in the turnover of plasma radioiron), the rate often decreasing to values less than normal Splenomegaly is uncommon in natives living at high altitudes, and the leukocyte and platelet counts are not increased —C F Stroebel, M D , and W S Fowler, M D , Secondary Polycythemia, *The Medical Clinics of North America,* July, 1956

THE JOURNAL

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NEW PROBLEMS FOR PHYSICIANS

Elsewhere in this issue of THE JOURNAL (page 566) is a report on some aspects of the Old-Age and Survivors Insurance disability program The American Medical Association has opposed consistently amendments to the Social Security Act leading to such a program Physicians throughout the country have been warned of the problems that inevitably will arise because of this program However, in spite of these and other warnings, the program is now covered by law, and many physicians and many patients will increasingly be made aware of it as medical reports are prepared for the Bureau of Old-Age and Survivors Insurance

The report appearing elsewhere in THE JOURNAL is intended to supply physicians with information on what the program entails It was prepared under the direction of a special committee of the Board of Trustees of the American Medical Association, the Committee on Medical Rating of Physical Impairment One aspect of the program which must be understood, ven though it may not be acceptable to many, is the ole of the physician as he assists his patient applicant e merely assists in providing the administrative agen y with a written report of clinical findings and medi facts The administrative agency will determine er the applicant s condition qualifies him medi as disabled under the program

Other points of special interest include

The term permanent and total disability does not ppear in the statutory definition of disability So while this program is popularly referred to as a permanent and total disability program, such reference s not an accurate one

An individual is not necessarily eligible under this rogram even though he may be considered 'perma entlv totally disabled' under another private or pub ic program

The degree of participation by the medical profes ion in the selection of medical personnel and the levelopment of medical policies and practices of the state administrative agency depends on the relationship between the agency and the medical profession at the state level

It is the applicant s responsibility to obtain, at his own expense, sufficient medical evidence to prove his disability

Consultative examinations at government expense may be authorized to verify the medical evidence submitted by the applicant or to provide additional medical data needed to confirm the diagnosis or severity of the applicant's present condition

The applicant s attending or examining physician may be authorized by the state agency to develop, at government expense, this additional medical data needed to confirm the diagnosis or severity of the applicant's present condition

An administrative agency may adopt a policy that the physician making the consultative examination must be mutually acceptable to both the applicant s attending or examining physician and the medical personnel of the administrative agency authorizing the consultative examination

The Committee on Medical Rating of Physical Impairment was appointed as an *ad hoc* committee of the Board of Trustees on September 14, 1956 Committee members are James R McVay, Chairman, Kansas City, Mo , George F Gsell, Wichita, Kan , Henry H Kessler, Newark, N J , Quentin W Mack, Boise, Idaho, and O A Sander, Milwaukee

The committee s objectives are as follows

To establish guides for medical rating of physical impairment, and lists by body systems of permanent impairments and their relation to permanent total disability

To provide liaison between the American Medical Association and the Bureau of Old-Age and Survivors Insurance on medical aspects of its program for the disabled

To study such other programs for the disabled as the committee may find of value in performing its duties

To inform constituent medical associations of current activities of the committee

The committee has met several times With the assistance of consultants, it has begun its work But it will need the understanding of the medical profession as this program develops Without such understanding, problems for the patients and their doctors will be made more acute

TOLBUTAMIDE FOR DIABETES MELLITUS

The release of the orally given hypoglycemic agent tolbutamide (Orinase) for prescription use in the management of selected cases of patients with diabetes mellitus imposes new responsibilities on the physician While tolbutamide may make unnecessary the routine use of insulin in many such patients, it is mandatory that the physician acquaint himself with the details of selection of patients and their management with this drug In patients with a satisfactory response to tolbutamide, the blood sugar level falls, glycosuria diminishes, and such symptoms as pruritus, polyuria, and polyphagia disappear, however failure to observe recommended precautions can cause deterioration of the patient's state of health and well-being

This drug is a member of the sulfonamide family and carries with it a risk for some patients, even though apparently slight because of its chemical structure The real and more serious problem, however will arise if the drug is dispensed without a prescription for self medication or if it is used in patients for whom it obviously is not indicated Tolbutamide is not a substitute for insulin and must not be used in the juvenile type of diabetes Such insulin-dependent diabetics must depend on hormonal replacement therapy in addition to careful dietary regulation Tolbutamide is of no value in diabetes complicated by acidosis and coma, here insulin is indispensable

Any physician using tolbutamide should insist that during the initial test period the patient report to the physician daily and for the first month report at least once weekly for physical examination, blood sugar level determinations, and white blood cell count After the first month the patient should be seen at least once a month and the above studies carried out

For the protection of both patient and physician, uncooperative patients should not be considered suitable for treatment with tolbutamide Since not all patients with diabetes mellitus are suitable candidates for therapy with this drug, it is essential that the physician know the limits of application and the criteria for selecting patients for treatment with it It is especially important for the patient not to develop a careless attitude, because it will result in serious health consequences and failure of treatment The use of tolbutamide gives no diabetic license to ignore dietary restrictions, and all of the usual diagnostic and therapeutic measures necessary to insure optimal control of the diabetic state with insulin are equally necessary for control with this drug

The following precautions must be observed 1 The patient on tolbutamide therapy must receive full and complete instructions concerning the nature of his disease and what he must do to prevent and detect complications and to control his condition 2 He must fully understand that he cannot disregard instructions relative to body weight, exercise, personal hygiene, and avoidance of infections 3 He must be informed about how and when to test for glycosuria and ketonuria and how to recognize and counteract impending hypoglycemia 4 He must be informed that treatment only controls rather than cures diabetes and that, for good control to be maintained, directions regarding diet and dosage of the drug must be followed rigidly 5 Care must be exercised to avoid ketosis, acidosis, and coma, especially during the trial period when insulin is being withdrawn

Use of tolbutamide is contraindicated in patients having (1) juvenile or growth-onset type diabetes mellitus, (2) unstable or "brittle" type diabetes mellitus, (3) history of diabetic coma, (4) maturity onset diabetes complicated by severe ketosis, acidosis, diabetic coma, severe trauma, gangrene, Raynaud's disease, or serious impairment of renal or thyroid function, (5) hepatic dysfunction or (6) diabetes mellitus adequately controlled by dietary restriction

The diabetic patient whose condition is most likely to be tolbutamide-responsive is one in whom the disease is relatively mild and stable and developed some time after the age of 30 years Responsiveness is measured by a satisfactory reduction in blood sugar level and glycosuria during the trial period, which should be continued for five to seven days provided ketosis does not intervene The patient is considered nonresponsive to tolbutamide if any of the following conditions develop ketonuria, glycosuria, unsatisfactory decrease in or persistent hyperglycemia, serious side-reactions, or failure to obtain subjective or objective clinical improvement

The recommended dosage for tolbutamide therapy in a suitable candidate, whether he is or is not receiving insulin, is as follows on the first day, 3 Gm , on the second day, 2 Gm , on the third day, 1 Gm On occasion, depending on the clinical response, dosage is decreased more slowly, but this period should not exceed one week Thereafter, the daily dose, which can be given as a single dose each morning or in divided doses, is adjusted as required to obtain optimal control The ultimate maintenance dose may be as little as 0 5 Gm daily or as much as 1 5 Gm daily The usual maintenance dose is 1 Gm Maintenance dosage over 2 Gm should be avoided

When patients receiving insulin are converted to tolbutamide therapy, insulin should be withdrawn slowly and its administration not stopped abruptly During the withdrawal period the patient should test his urine for sugar and ketone bodies as often as three times daily and report the results to his physician daily Patients whose insulin requirement is less than 40 units daily may be started on tolbutamide therapy with a concurrent 30 to 50% reduction in insulin dose, with further daily reduction of the insulin as response to tolbutamide is observed In patients requiring more than 40 units of insulin daily, tolbutamide therapy may be initiated in conjunction with a 20% reduction in insulin dose the first day, with further careful withdrawal of insulin as response to tolbutamide is observed The too rapid conversion from insulin to tolbutamide may result in aggravation of the diabetic state and ketosis, even in those patients whose insulin requirement is small During the conversion period, hypoglycemic reactions may occur, these are readily controlled by the administration of glucose or by modification of the dose

Combination tolbutamide-insulin therapy is rarely useful or necessary, and it is not recommended All patients who develop ketosis or serious side-effects other than hypoglycemia or in whom unsatisfactory blood or urine sugar level control results should have tolbutamide withdrawn and be returned to their former insulin therapy

During the course of intercurrent complications, such as ketoacidosis, severe trauma, major surgery, infection, severe diarrhea, and vomiting, supportive insulin therapy becomes mandatory Depending on the severity of the diabetes, the nature of the complications, and the availability of laboratory facilities tolbutamide therapy may be continued or may be withdrawn while insulin is being used However, if tolbutamide is not withdrawn, extra care must be exercised to avoid hypoglycemic reactions Because insulin is indispensable for the management of complications, all patients receiving tolbutamide should be carefully instructed in the proper use of insulin

The use of members of the sulfonamide family for their hypoglycemic effect has been studied for some years One agent is now sold in Canada, and the drug can be obtained in other countries In the United States at least two have been studied extensively One has been withdrawn even for experimental use, the other, tolbutamide, is now available since the Food and Drug Administration has made effective a new drug application Much work has been undertaken as this substance has been studied More, however, remains For example, what may happen when the drug is administered for many years remains to be seen In the meantime, physicians must warn their patients that this drug is not a true substitute for insulin but in carefully selected patients can be used instead of insulin to control the blood sugar level If the patients are not warned properly, if they do not cooperate, or if the prescribers of the drug do not understand its limitations, trouble will inevitably arise

NATIONWIDE NATIONAL HEALTH SURVEY BEGINS

The National Health Survey program has progressed to the point that field work on household interviewing began, nationwide, on May 6 The survey represents the first effort in 20 years to obtain comprehensive statistics on illness in the general population

The Public Health Service is undertaking the survey ontinuing basis pursuant to legislation enacted session of the Congress There has, of course, creasing recognition for some time of the fact , for the general population, information on health conditions is seriously out of date An important step toward remedying this situation was the establishment in January, 1949, of the U S National Committee on Vital and Health Statistics Two successive *ad hoc* subcommittees were set up by the chairman of the national committee "to frame the problems in morbidity statistics, including chronic diseases and medical care statistics, in order that morbidity data may be directly related to demographic factors' These subcommittees recommended the study of a number of methodological questions, and in several community surveys a start was made in the investigation of some of these questions A third *ad hoc* subcommittee was created in 1951 and charged with the task of drafting 'a plan for a national morbidity survey keeping in view the interests of local areas' The report of this subcommittee, "Proposal for Collection of Data on Illness and Impairments United States,'[1] became the basis for the new National Health Survey law (P L 652, 84th Congress)

The legislation was sponsored by the administration and enjoyed bipartisan endorsement The American Medical Association supported it, while cautioning that any survey in this area should be conducted in such a manner that all interested parties can agree substantially with its conclusions The House Committee on Interstate and Foreign Commerce embraced this caution, repeating it in its report on the measure

Operation of the survey is centered in the Public Health Service's division of public health methods Dr Forrest E Linder, formerly of the National Office of Vital Statistics and more recently chief of the demographic and social statistics branch of the United Nations Statistical Office, has returned to the PHS as the survey director Dr Alice M Waterhouse is staff medical advisor The survey program will have the benefit of a national advisory committee composed of representatives of medicine, dentistry, hospital administration, biostatics, labor, insurance agencies, pharmaceutical houses, and other interested disciplines and groups The American Medical Association will be represented on this committee by Dr Henry B Mulholland of the Council on Medical Service, with Mr George W Cooley of the Council staff serving in a staff capacity to Dr Mulholland

The survey program will consist of three parts a continuous sampling of households on a national basis, information being collected in each household by carefully trained and supervised lay interviewers, a series of special studies to gather information of a type for which a household interview method is not appropriate, and a series of methodological studies designed to improve the techniques of measurement of illness and to check the validity of data collected in the interview survey and special studies

The household interview is the first of these parts to get under way on a full scale The field work for this part of the study will be conducted for the public Health Service by the Bureau of the Census At the beginning, the interviewing will be done in 330 Census Bureau primary sampling units, which consist of counties, parts of counties, combinations of counties, or metropolitan areas chosen to produce a representative sample of the population There is at least one sampling unit in each state, and in most states there are several Within these areas, repeated samples of households will be drawn for interviewing Since a one-time interview is planned, subsequent samples will consist of different households each month Also, since the size of the national sample is small—3,000 households per month—the number of households interviewed in any one area will be small

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[1] Proposal for Collection of Data on Illness and Impairments United States, PHS Publication 333, Department of Health Education, and Welfare, Public Health Service, Oct, 1953

The interview questionnaire includes questions about illnesses of all kinds and whether they are medically attended, chronic conditions and impairments whether or not they interfered with the person's usual activities, dental conditions and dental care, disability and, separately, bed disability, symptoms, accidents and injuries, and hospitalization

The present plan is to compile periodically separate morbidity statistics for the country as a whole and for each of 11 geographical regions of the country Data from these regions will be shown separately for large metropolitan areas as a group, all other urban areas as a group, and rural areas In addition, statistics will be compiled separately for each of nine large standard metropolitan areas

MENTAL ILLNESS IS A MEDICAL PROBLEM

" [and] it is high time the medical profession launched a concerted attack on this problem' This emphasis was made recently by David B Allman, MD, President-elect of the American Medical Association, at a meeting of the 1957 National Health Forum on 'Better Mental Health—A Challenge to All Health Services"

"As a physician,' Dr Allman stated in his speech, "I am concerned about the responsibilities of the medical profession in treating mental patients—and more important in preventing further increases in mental illness in the future

Decades ago, mental illness was considered a social, moral, and legal problem, with mentally disturbed people treated as witches, possessors of evil spirits, or objects of public hilarity Today, the conscientious, well informed doctor, realizing that even physical illness can be mentally induced, puts more emphasis on treating the whole person to solve his mental as well as physical problems

Dr Allman pointed out that only about 4% of the practicing physicians in this country are psychiatrists Great as their contributions are, these few men cannot do the job alone What is the medical answer? It is obvious that every doctor, no matter what his specialty, must accept a greater share of responsibility for aiding in the solution of these problems

The psychiatrist needs the intelligent cooperation of other doctors in every type of practice Who is in a better position to deal with mental health and potential mental illness than the doctor who has maintained a close relationship with his patients over a long period of time? Unfortunately, not all who could be helpful have realized their responsibilities in this area It has taken a long time to accept the idea that present-day psychiatry is of interest to the entire realm of medicine

Dr Allman listed what he believed to be the physician's responsibilities in regard to mental illness

First, a physician must know his patients

Second, a physician must recognize and accept the value of psychiatric techniques in dealing with all his patients

Third, a physician must be acquainted with all the community services and resources available in treating and rehabilitating the mentally ill

Fourth, a physician should integrate the whole treatment and rehabilitation process He can help the patient's family understand the nature of the illness and show them how they can best help the patient during his treatment He can act as a mediator when the patient is released and must be rehabilitated

Fifth, a physician has a tremendous educational job to do, not only with patients and patients' families but with the general public in regard to mental illness and mental health

Elaborating on Dr Allman's last point, attention is directed to the fact that throughout the country, during the month of May, the National Association for Mental Health and its 500 affiliates, in cooperation with the National Institute for Mental Health, are conducting a drive to arouse public interest in the fight against mental illness Every physician has an important role to play in these observations As a scientist and physician he can help to educate the public with regard to mental illness As a citizen in his community he can work with the local mental health association to help heighten public awareness so that the task of combating mental illness will not be left to the medical profession alone, but rather to all the people of the United States

REGISTRATION UNDER THE HARRISON NARCOTIC ACT

Physicians who are registered under the Harrison Narcotic Act or under the Marihuana Tax Act must effect reregistration on or before July 1 to avoid penalty Each year, despite the annual warnings in The Journal, this requirement is overlooked by some physicians, and unpleasant consequences follow Failure to register adds a penalty of up to 25% to the tax payable and, in addition, subjects the physician who continues to dispense to the possibility of a fine not exceeding $2,000 or imprisonment for a maximum of five years, or both The Commissioner of Internal Revenue has in past years given some tardy registrants the choice of paying sums by way of compromise, a procedure authorized by law, or accepting criminal prosecution If this procedure does not produce the required promptness in reregistration, the commissioner will have no choice but to institute criminal prosecution

This requirement for registration and reregistration does not apply to the physician who does not intend to prescribe or use narcotics in his practice or to possess narcotics

ORGANIZATION SECTION

OLD-AGE AND SURVIVORS INSURANCE DISABILITY PROGRAM

The Committee on Medical Rating of Physical Impairment of the Board of Trustees has been assigned as one of its tasks the review and study of developments under the disability program administered by the Bureau of Old-Age and Survivors Insurance The information in the following pages relating to various aspects of this program has been obtained from reviewing the present law and statements of administrative policy and procedure issued by the Bureau of Old-Age and Survivors Insurance as well as from conferences with representatives of the bureau's staff and with members of its medical advisory committee—Ed

Introduction

The primary purpose of this report by the Board of Trustees Committee on Medical Rating of Physical Impairment is to inform the medical profession on certain aspects of the disability provisions in the Old-Age and Survivors Insurance (OASI) section of the Social Security Act Although the American Medical Association has consistently opposed amendments to the Social Security Act leading to such a program for the disabled, the proposal is now law Most physicians will be requested by patients from time to time to submit medical reports to the Bureau of Old-Age and Survivors Insurance (BOASI) It is, therefore, desirable for all physicians to be familiar with the information contained in this report and especially with the following points

1 The role of the physician in this program is to assist the patient-applicant in providing the administrative agency with a written report of clinical findings and medical facts on the basis of which the administrative agency will determine whether the applicant's condition medically qualifies him as disabled under the program

2 Disability is defined under this program as inability "to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or to be of long-continued and indefinite duration " From this definition it may readily be seen that disability *is not solely a medical question*

3 Determinations of disability involve consideration of both medical and nonmedical factors Such determinations are the sole responsibility of the administrative agency Attending or examining physicians are not expected by law or administrative regulation to express their opinions as to whether an applicant is or is not disabled as defined in the law

4 The BOASI establishes general policies and procedures under this program, and through its district office accepts applications and undertakes preliminary case development State administrative agencies have considerable latitude in implementing the medical aspects of the program in accordance with locally accepted practices

5 Misunderstandings between physicians and applicants can be avoided if physicians clearly explain their role to applicants and the scope and purpose of medical reports The fact should be emphasized that such reports represent only one factor in the administrative agency's decision as to whether or not an applicant is eligible for benefits under the program Applicants should be referred to BOASI district offices for information on such matters as eligibility requirements and amount of monthly benefits The location of these offices can be ascertained from any local post office

Program Provisions

1 *When are applicants required to submit medical evidence under the Old-Age and Survivors Insurance program?*

An applicant must furnish medical evidence when applying for

a Disability freeze, under which a qualified individual may protect himself and his family against loss of future benefits by having his Social Security account "frozen "

b Disability insurance benefits, under which a qualified individual age 50 or over may receive monthly payments beginning July, 1957 The amount of the payments will be determined as though the applicant had reached 65 on the date he became disabled

c Disabled child's benefits, under which dependent sons or daughters of retired or deceased qualified individuals, or the mother who has in her care such disabled son or daughter, may receive monthly payments beginning January, 1957 These payments are made in cases where disability began before age 18, regardless of present age

2 *When is an individual considered disabled under the Old-Age and Survivors Insurance disability program?*

An individual is "disabled' or 'under a disability' when he is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or to be of long-continued and indefinite duration It should be noted that the terms permanent and total' do not appear in the definition of disability So while this program is popularly referred to as a "permanent and total disability program, such reference is not an accurate one

3 *What constitutes "substantial gainful activity"?*

Services of a substantial nature performed in competitive employment or self-employment with reasonable regularity may be considered to constitute substantial gainful activity However, there is no specific dollar measure for determining 'substantial gainful activity ' Careful consideration must be given to all the facts in each case the hours worked, the nature of the services, the continuity and duration of the period of services, etc

4 *What is meant by a 'medically determinable" impairment?*

The committee members are James R McVay Chairman Kansas City Mo, George F Gsell Wichita, Kan, Henry H Kessler Newark, N J Quentin W Mack, Boise, Idaho and O A Sander Milwaukee

This means that the impairment must be one that can be determined by a physician on the basis of examinations or tests

5 *What is meant by "long-continued and indefinite duration"?*

This means that no approximate date of recovery or improvement can be predicted with reasonable assurance

6 *What is an "impairment"?*

An 'impairment" is a physical or mental disease, anatomic abnormality or loss, or combination of these An impairment must be so severe as to justify its consideration as the cause of failure to obtain any substantial work

7 *When is 'blindness' considered a disability?*

Blindness per se is considered a disability for freeze" purposes only Blindness" for this purpose is defined in the law as central visual acuity of 5/200 or less in the better eye with the use of a correcting lens An eye in which the visual field is reduced to five degrees or less concentric contraction shall be considered for the purpose of this paragraph as having a central visual acuity of 5/200 or less " To be eligible for monthly payments even a totally blind person must establish that he is unable to engage in any substantial gainful activity However, a person who has a less severe visual impairment may also be eligible for the freeze or monthly insurance benefits if his impairment prevents him from engaging in any substantial gainful activity

8 *When would a claim for disability be denied in spite of a severe impairment?*

A finding of disability may not be made when an individual can do or is doing substantial work despite the impairment, as where he has special vocational skills or experience, or if the impairment is amenable to safe and acceptable treatment

Requirements for Eligibility

9 *What requirements must an applicant meet to be eligible under the freeze or monthly payments provisions of the OASI disability program?*

To qualify for monthly payments or to have his Social Security record frozen, an individual must

a Have Social Security credit for at least 5 years' work in the 10 years before the beginning of his disability, and

b Have a work record in covered employment for at least 1½ years during the 3 years just before he became disabled, and

c Have been disabled for 6 months or more at the time he files his application, and

d Produce medical evidence that he is disabled or under a disability as defined in the law

10 *What requirements must an applicant meet to be eligible for monthly payments under the disabled child's provision of the OASI disability program?*

To qualify for monthly payments, an individual must

a Have become disabled before reaching 18 years of age, and

b Be unmarried, and

c Be dependent upon a parent, step-parent, or adopting parent who is receiving Social Security old-age insurance benefits, or

d Have been dependent on a parent who died after 1939 and after working long enough under Social Security to become insured for the payment of survivors' insurance benefits, and

e Produce medical evidence that he is disabled or under a disability as defined in the law

To receive disabled child's insurance benefits, it is not necessary for such a person himself to have any record of work under Social Security An individual may also qualify at any age for these benefits provided he meets the requirements outlined above

11 *If an individual is receiving payments for 'total disability' under a private or another public program, will he be considered disabled under the OASI disability program?*

Not necessarily For example, his physical or mental impairment may not be serious enough or sufficiently prolonged to meet the definition of disability under this program Furthermore, he will not necessarily be considered disabled because he can no longer do the type of work required in his last job or any jobs he has held in the past, a characteristic frequently entitling an individual to benefits for total disability' under some other programs

12 *Under what circumstances other than cessation of disability may monthly payments, under the OASI disability program, be reduced, suspended, or delayed?*

Monthly payments will be reduced by the amount of any other cash benefits the disabled individual receives under a disability program of another federal agency except veterans' compensation based on service-connected disabilty, or under a state or federal workmen's compensation law Monthly payments may be suspended if the individual refuses without good cause to accept rehabilitation services available to him under a state plan approved under the Vocational Rehabilitation Act Policies and procedures in determining what constitutes good cause are being worked out by BOASI and state vocational rehabilitation agencies The actual determinations in specific cases will be made by BOASI Monthly payments are not payable for the first six months of disability, even though the individual may already be 50 years of age or older at the time his disability begins

Administration

13 *What agency administers the Old-Age and Survivors Insurance disability program?*

The responsible administrative agency is the Bureau of Old-Age and Survivors Insurance (BOASI) in the Department of Health, Education, and Welfare However, under an agreement between each state and the Secretary of the department, an agency in each state makes determinations of disability State agencies are reimbursed from federal funds for all necessary expenses In those cases not covered by state agreements the determinations of disability are made by BOASI

14 *What State agencies are designated to make determinations of disability?*

In 43 states the designated agency is the state vocational rehabilitation agency In New York, North Carolina, Washington, Oklahoma, and South Dakota, determinations of disability are made by the state public welfare agencies In 10 states, arrangements have been made for special agencies to make determinations where the principal impairment is visual Each state agency is expected to develop its own relationships with the medical profession in reference to medical consultants, medical advisory committees, consultative examinations, and other medical matters

15 *What medical aspects of the disability program are responsibilities of a state agency?*

A state agency s responsibilities include

a Evaluating the adequacy of medical evidence submitted by an applicant,

b Obtaining clarification of or additional medical evidence from the applicant or other sources,

c Authorizing and obtaining additional medical examination of the applicant, where necessary to verify medical evidence obtained by the applicant,

d Determining through the application of prescribed medical criteria whether the applicant is or is not under a disability,

e Recommending follow-up medical examinations, where indicated,

f Reconsidering disability determinations where requested by BOASI,

g Fostering mutual understanding with physicians in connection with administration of the program,

h Providing sufficient qualified personnel to evaluate pertinent medical data and other evidence, and to make determinations of disability in all cases covered by the agency's agreement with the department

16 *What administrative phases of the disability program are not responsibilities of the state agency?*

The State agency is not responsible for

a Determining whether the applicant has met the requirements of the law other than that he is or is not under a disability,

b Notifying the applicant of the determination in his case,

c Explaining the program to applicants,

d Conducting hearings on appeals from or defending agency determinations of disability

17 *What aspects of the disability program are responsibilities of a BOASI district office located in a state?*

The BOASI district office is responsible for

a Explaining the program to applicants and the public,

b Advising applicants regarding potential eligibility,

c Providing applications and other required forms,

d Assisting applicants in completing applications and obtaining necessary data from a physician, hospital, or other source,

e Accepting applications and requests for reconsideration or hearing,

f Forwarding case files for determination of disability to the appropriate state agency

18 *What administrative phases of the disability program are not responsiblities of the BOASI district office?*

The BOASI district office is not responsible for

a Making determinations of disability,

b Advising an applicant regarding the nature of his disability

19 *How do applicants file an application under the OASI disability program?*

Applicants may obtain and file the necessary forms and information at their local BOASI district office It is desirable for them to visit the office in person However, if they are unable to appear personally, they may write or telephone or have someone else do so for them The location of the appropriate office may be obtained from their local post office There are more than 550 such district offices

20 *What are 'determinations of disability'?*

Determinations of disability are the decisions that an applicant is or is not disabled, including the date of onset or cessation of disability

21 *How and by whom are determinations of disability made in a state agency?*

Determinations of disability are made by "review teams' in a state agency Each review team is composed of a disability examiner and a review physician

The reviewing physician (often a practicing physician) is responsible primarily for evaluating the applicant s medical evidence and assessing the severity of the impairment, or combination of impairments The disability examiner is the nonmedical member professionally qualified to assess the work history, occupational capacity, and other factors in the evaluation of a disabled individual's ability or inability to engage in substantial gainful activity

The determination of disability is the end-product of the application of these professional skills to the facts of each specific case and the assessment of the degree of physical or mental impairment along with the individual factors of age, education training, and employment experience All determinations of disability are made jointly and are signed by both members of the review team

In a few large state agencies, the reviewing physicians may be supervised by a medical consultant, although in other state agencies the medical consultant is also the reviewing physician A medical consultant's primary responsibility is to advise the state agency on broad policies relating to medical aspects of the program, recommending acceptable standards and procedures, and establishing liaison with medical and related professional groups Some state agencies have district medical consultants in addition to a state medical consultant A state agency may have more than one medical consultant

22 *Does the local medical profession participate in the selection of medical personnel and the development of medical policies and practices of the state agency in connection with the OASI disability program?*

The degree of participation by the medical profession depends upon the relationship between the state agency and the medical group The state agency is primarily responsible for the development and maintenance of a satisfactory relationship with the medical profession at the state level

23 *After the review team makes a determination of disability what happens?*

The file and recommendation of the state review team is sent to the division of disability operations, BOASI, in Baltimore, for review by medical and adjudicative personnel The BOASI may reverse the finding of a state review team that an applicant is disabled The BOASI may not, however, reverse a state finding that the applicant is not disabled However, in the latter case, the file may be returned to the state agency for reconsideration after which the state agency may affirm or reverse its original recommendation This does not mean that the state agency must reverse its decision, even when referred back for reconsideration the state agency can affirm or reverse its original recommendation as it sees fit

24 *How is the applicant notified of the decision on his claim?*

He receives a letter from BOASI When a claim is disallowed on the basis of medical evidence, no reference is made to the specific content of the medical reports contained in the file

25 *Can an applicant appeal from the decision of BOASI?*

Yes He may file a request with the BOASI district office for reconsideration or a hearing before a referee of the Social Security Administration Appeals from a decision by a referee may be taken to the U S District Court

26 *When and by whom are individuals referred for vocational rehabilitation services?*

Generally, the same review team which makes the determination of disability also decides whether the applicant should be considered for vocational rehabilitation services The names of any such individuals and any information in the file is used by the rehabilitation agency in its investigation and consideration of eligibilty for rehabilitation services

27 *Does BOASI have any control over vocational rehabilitation standards of eligibility established or services furnished by a state vocational rehabilitation agency involving applicants for disability benefits?*

No, these aspects are entirely in the hands of the state vocational rehabilitation agencies

28 *What follow-up is made in reference to rehabilitation?*

None by BOASI, the state vocational rehabilitation agency handles the case as it sees fit, reporting to BOASI when disposition of the case is made

29 *Do monthly payments under the disability program continue during the rehabilitation period?*

Yes Moreover, he may continue to receive benefits for as long as a year even though working, if his work is pursuant to a state plan approved under the Vocational Rehabilitation Act

Medical Evidence

30 *How are BOASI medical policies and practices established?*

BOASI medical policies and practices are established by consultation between its medical and lay administrators and its medical advisory committee These medical considerations serve as general guides for the state agencies when affecting determinations of disability

31 *What is the medical advisory committee and when was it appointed?*

In February, 1955, the commissioner of Social Security appointed a committee, representative of a wide variety of skills in medical practice and public and private medical and welfare administration and of the major geographical areas of the country, to advise him on medical policies involved in administering the disability freeze provision of the Social Security Act Subsequently the committee's duties were enlarged to include all provisions of the OASI disability program Since its appointment in 1955 the committee has met six times

32 *What are the purposes of the medical advisory committee?*

The purposes of the medical advisory committee are

a To provide technical advice and consultation regarding medical aspects of the administration of the disability program

b To promote mutual understanding and effective working relationships among the Social Security Administration, cooperating state agencies, and physicians generally

c To provide professional guidance in formulating medical guides and standards for evaluating disability

33 *What medical criteria are used by state and federal review teams in evaluating specific impairments and combinations of impairments?*

The Department of Health, Education, and Welfare has prepared guides for the review teams in federal and state agencies The guides contain descriptions of more than 130 commoner types of conditions that usually result in total disability They contain clinical descriptions of these conditions in terms of anatomic damage and functional loss that demonstrate great severity The advice and assistance of staff physicians of the U S Public Health Service and consultation and assistance of the medical advisory committee were obtained in establishing these guides They are constantly under examination in the light of experience to insure that they are realistic and reflect advances in medical knowledge These guides have been helpful in identifying cases of clear-cut disability and in describing the clinical evidence necessary to establish the existence and severity of these conditions

34 *Are copies of these criteria available to physicians?*

No At the present time they are not available In themselves the guides are not wholly representative of all the considerations taken into account in making a determination of disability They do not contain transmittals issued subsequent to the preparation of the guides, understandings resulting from individual case discussions, etc Neither do the guides fully represent the weight given to nonmedical factors in adjudication Regulations are being developed which will indicate to the public the basic criteria for eligibility

35 *What medical proof of disability is the applicant required by law to furnish?*

The pertinent provision of the law states "An individual shall not be considered to be under a disability unless he furnishes such proof of the existence thereof as may be required' The applicant is required to obtain, at his own expense, sufficient medical evidence from which a determination in his case may reasonably be made by the review team Individual medical examinations, records, and other data that the applicant needs to prove his disability may not be paid for from OASI funds

36 *How do applicants obtain the required medical evidence to support their applications?*

In general applicants will ask a physician to complete a medical report form and mail it to the BOASI district office Other sources may be hospitals, institutions, places of employment, or public or private agencies, where applicants have been treated for their disabling conditions. Applicants may be requested to obtain medical evidence either by BOASI or by the state agency.

37. *What assistance do BOASI district offices provide an applicant?*

A primary function of a BOASI district office is to advise applicants of their rights and assist them to obtain the necessary evidence. The term "case development" refers to this function of the BOASI district office. "Development" does not imply that BOASI funds have been used to purchase medical evidence. When applicants are interviewed, either at a district office, an itinerant station, or their homes, possible sources of medical evidence are discussed in order to determine the source from which the most comprehensive data on the applicant's condition may be obtained. Applicants may also be assisted in completing a request for a medical report. Where special circumstances indicate, a district office may arrange directly with the source to present a report for the applicant. Occasionally a BOASI district office will help the applicant by copying the medical record or summary in possession of a hospital.

When the BOASI district office knows a physician's preference (personal visit by applicant or report form mailed) in the matter, the district office may suggest that the applicant follow the physician's preference. When advisable, the district office may also telephone a physician to request a report on behalf of the applicant.

38. *When may an applicant be required by a BOASI district office to obtain additional evidence?*

BOASI District Offices may require the applicants to furnish additional medical evidence when a report is grossly inadequate, as when:

a. Evidence submitted deals with a condition other than the alleged disability, or

b. In old disability cases, the report does not contain any information as to onset, or

c. The medical report contains only a one or two word diagnosis, or

d. When additional evidence is needed which can be best secured by the district office through the applicant.

39. *Are applicants requested by the BOASI district office to obtain medical evidence of disability although there may be some question as to whether he meets the work requirements?*

Yes. For example, medical evidence is required and the case referred for a determination even though the applicant does not have a record of at least 1½ years of work in covered employment in the 3 years just before the date on which the applicant alleges his disability began. Ordinarily such an applicant would not be considered eligible. However, consideration of all evidence in the file may lead the review team to decide that the date on which the applicant alleges his disability began is incorrect and the applicant is, therefore, eligible.

40. *To whom does the term "reporting physician" refer?*

A reporting physician is the doctor who submits a medical report on the applicant's disability. He is usually the applicant's attending physician but sometimes where the disability is of long standing he may be a doctor who is not now treating the applicant but who has done so in the past.

41. *What is an applicant's principal source of medical evidence?*

An applicant sufficiently disabled to qualify under this program will probably be receiving medical care, or have had a medical examination for his condition. Ordinarily, a written report by the reporting physician based upon his existing records or a current examination of the patient will be sufficient.

42. *What information should a medical report contain?*

A medical report should be a concise, factual statement of clinical findings and medical facts by which the state agency's review physician or medical consultant can confirm such findings and arrive at a sound conclusion as to the severity of the impairment, thereby determining whether the applicant meets the medical qualifications for disability. The pertinent history, symptomatology, clinical findings, and diagnosis should be reported in sufficient detail to permit another physician to establish, from the report, the degree of severity of the applicant's impairment. Reporting physicians are not asked to express opinions as to whether or not the applicant is disabled in terms of either the degree of severity of the impairment, or work capacity, or employment potential of the applicant. These determinations are the responsibility of the review team, not the reporting physician.

43. *Is the use of official medical report forms mandatory?*

No. A basic form is provided. However, physicians may use any other form or prepare a narrative statement, incorporating the necessary information, on their personal letterheads.

44. *To whom are medical reports submitted?*

Physicians should mail medical reports to the requesting office (BOASI or state agency). The return address will be furnished with the request.

45. *Under what circumstances may a reporting physician be asked to supplement or clarify one of his reports?*

When a report fails to provide sufficient information to establish the severity of impairment, the review physician or medical consultant may write or call the reporting physician for additional data. Occasionally the patient himself will receive official notice that additional medical evidence is necessary.

46. *If the reporting physician cannot supply the supplementary data requested from his existing records, what procedure should be followed?*

If such data cannot be supplied without further examination of the applicant, the physician should so inform the applicant and discuss with him the necessary procedures and costs for developing the required data.

47. *What happens when an applicant fails to furnish additional medical evidence or to submit to a medical examination as requested by the state agency?*

Thirty days after the last request for additional evidence is made by the state agency, a determination will be made on the evidence in the file and the file sent to the division of disability operations, Bureau of Old-Age and Survivors Insurance, Baltimore. If an applicant fails to submit to an examination, he is allowed to explain his failure and a decision is made on all the facts in the case

48 *To whom is medical evidence available which has been provided by the applicant?*

Generally, medical information cannot be disclosed to anyone without the consent of both the applicant and the source However medical evidence is routinely made available to state vocational rehabilitation agencies for rehabilitation purposes

49 *Is there a specific provision in the law under which BOASI or a state agency may authorize the payment of OASI funds for medical examination or records required of an applicant to initiate and support his claim under the OASI disability program?*

No The basic responsibility for initiating and supporting his claims rests on the applicant

50 *By what authority does BOASI or a state agency expend OASI funds for medical examinations or records?*

Authorization for medical consultation is derived from the statutory authority granted the Secretary (1) to adopt reasonable rules and regulations to provide for the nature and extent of proofs and evidence, and the methods of taking and furnishing the same to establish benefit rights, and (2) to hold such hearings and conduct such investigations and other procedures as he may deem necessary and proper for the administration of the act

Similar statutory provisions have for many years been construed to authorize the use of government funds for the purchase of evidence, including medical evidence

51 *Under what circumstances may OASI funds be expended for medical examinations?*

OASI funds may be expended for medical examinations when the applicant has submitted sufficient evidence to show there is a reasonable likelihood that the impairment meets the disability requirements and yet there is still some question whether a sound decision can be made In such case, a medical (consultative) examination, at government expense, may be authorized by the state or federal review physician in order to insure that an improper award will not be made

52 *What is the purpose of a consultative examination?*

Consultative examinations are authorized for the purpose of

a Verifying the medical proof of disability that an applicant has submitted, or

b Providing additional medical details needed to confirm the diagnosis or establish the severity of the applicant s present condition, including measurement of the extent of his remaining functional capacities or the potential remediability of the condition

53 *Who determines the type and scope of a consultative examination?*

The state review physician makes these decisions in light of the particular circumstances of the case A consultative examination may vary from a simple laboratory test to a complete medical examination, including work evaluation and complete diagnostic services

54 *By whom are consultative examinations performed?*

These examinations are performed by consulting physicians selected by the state review physician The degree of participation by the applicant's physician in the referral of his patient to a consulting physician depends upon the policy of the state agency In selecting consulting physicians, the review physician is expected to conform to the customary practice of the state agency or follow the procedures he believes most suitable to the local conditions consistent with the maintenance of good doctor-patient relationship

55 *What medical information from the applicant's file is made available to a consulting physician?*

Any information necessary to an effective examination can be furnished to the consulting physician

56 *What expenses other than professional fees are payable from OASI funds in connection with consultative examination?*

When the physical condition of the applicant warrants, transportation costs and other directly related and necessary expenses may be paid Travel expenses of the consulting physician may also be paid when the applicant is unable to come to the physician's office Hospitalization of the applicant for observation and tests, but not for treatment, may also be provided Any expenditure must be authorized in advance by the state agency

57 *To whom is medical evidence available which has been obtained at government expense?*

Such information may be made available to the applicant's attending physician upon the request of the applicant and the consent of the consulting physician

58 *Is it an administrative policy at the federal or state level that the consulting physician be mutually acceptable to both the applicant s attending or examining physician and the review physician?*

No The basic policies are (1) noninterference in doctor-patient relationships and (2) conformance to existing state agency practices and procedures consistent with local conditions State agency practices vary Many of them consider acceptability to attending physician when selecting a consulting physician

59 *Are there any statutory provisions which prevent either the federal or state agency from adopting such a policy?*

No

60 *Can the federal or state agency pay the applicant s attending or examining physician for professional services in developing additional medical details needed to confirm the diagnosis or to establish the severity of impairment, after the applicant has submitted, at his own expense, sufficient evidence to show there is a reasonable likelihood that the impairment meets the disability requirements?*

Yes The state agency has the responsibility for deciding what evidence is needed and the best source of the evidence There is no prohibition on the use of the attending physician in a consultative capacity, however, in many cases, an examination by an independent medical source is considered preferable by the state agency

VA MEDICAL CARE PROGRAM

In the Oct. 27, 1956, issue, THE JOURNAL printed the text of an address presented by Louis M. Orr, M.D. Chairman of the Committee on Federal Medical Services of the Council on Medical Service, entitled "To Socialized Medicine and Socialism by Way of the Veterans Administration." This address has since been published in pamphlet form under the title 'The Trojan Horse' and may be obtained from the Public Relations Department of the A. M. A.

THE JOURNAL has received a letter from Robert A. Bell, M.D., medical consultant, National Rehabilitation Service, Veterans of Foreign Wars of the United States, disagreeing with both the policy and the philosophy of Dr. Orr's statement and with certain statistical material quoted in the address.

Since Dr. Bell takes issue with policies of the American Medical Association referred to the Committee on Federal Medical Services for action, his letter was forwarded to that committee for comment. Dr. Bell's letter and a reply prepared by Dr. Orr follow.—ED.

To the Editor:—This pertains to a manuscript which was presented before the annual meeting of the Louisiana State Medical Association, April, 1956, by Louis M. Orr, M.D., and reprinted in THE JOURNAL (162:860-865 [Oct. 27] 1956). The theme of that manuscript appears to have been impending socialized medicine and socialism through federally financed and controlled medical care of veterans with non-service-connected disability, in the VA hospital and medical system.

I would not take issue with the right of any individual to express his viewpoint on the question under consideration but do plead for clarity, facts, and avoidance of bias in discussion of the problem. Dr. Orr was correct in stating that the American people must decide what is to be the future course of the VA hospital and medical care program, but there is reason to question the correctness of his implications that such decision has not and is not being made, that it must be made soon or it will be too late, and that if the program is not reversed we will eventually reach socialized medicine by default.

The hospitalization of veterans for non-service connected disability is effected in accordance with public policy. The governing statutes are enacted by the elected representatives in the Congress and approved by the President. Those who enact these laws are elected by qualified voters. We can only assume that the present program represents the consensus of current public opinion. The public, however, has not permitted or authorized an unrestricted hospitalization program.

The basic eligibility for treatment in VA hospitals for non-service-connected disabilities is now limited to some veterans of wartime service. Veterans of peacetime service must have been discharged from military service for disability incurred in service or must be in receipt of compensation for service-connected disability. Further, in the case of a veteran who has basic eligibility for wartime service, but was not discharged for disability and has no service-connected condition, there is the added requirement of a statement, under oath, of inability to pay the prospective cost of such treatment.

The war veteran (one who has had at least 90 days of continuous service, some of which was during a war period, from which he received a discharge other than under dishonorable conditions) who was not discharged from military service for disability and who has no disability adjudged by the VA to have been incurred in service or aggravated thereby, has no eligibility unless he certifies under oath that he is unable to pay for his prospective hospitalization and then, on a bed available basis. To state these eligibility requirements in another way, a veteran is not eligible for VA hospitalization for non-service connected disability merely because he is a veteran. The peacetime veteran has no eligibility unless he either was discharged from the armed forces for disability incurred or aggravated in service or is in receipt of compensation for such disability. The war veteran who was not discharged from military service for disability incurred in service, or aggravated thereby, and is not in receipt of compensation, has no eligibility unless he served more than 90 days, had a discharge other than dishonorable, and certifies under oath that he is unable to pay for his prospective hospitalization—and then, on a bed available basis, and subject to medical determination of need for such medical care.

It would seem that VA hospitalization for non-service-connected disability constitutes a public assistance program only for those disabled as a result of service, and for those war veterans who cannot afford, at the moment, the prospective cost of their hospitalization. This program hardly seems to have drifted from its original humanitarian purpose. It is a part of the over-all pattern of benefits, including compensation, pension, and readjustment aids, largely for war veterans, which has been established for the assistance and relief of eligible veterans as a measure of the government's obligation and therefore at the expense of the government. This program was instituted in 1924 by President Coolidge—an individual who would hardly be accused of having favored socialistic measures. In fact, the original program was far more liberal than is the restricted program currently in effect. The act of June 7, 1924 [Sub-Section 202 (10), Title II, Public, No. 242, 68th Congress] authorized, within the limits of existing government facilities, hospitalization for veterans of any war, military occupation, or military expedition since 1897, not dishonorably discharged, without regard to the nature or origin of *their disabilities*. The basic *policy presently in effect* was drafted into law (Section 6, Public, No. 2, 73rd Congress, approved March 20, 1933) in the depth of an unprecedented depression and it has not been changed materially since that time.

The hospitalization of a veteran for non service connected disability is contingent upon the availability of beds, and this is governed by, among other things, hospitals in being and by appropriated funds. The latter factor is reviewed periodically by the executive and the legislative branches of the government. Since 1948, when the Federal Board of Hospitalization was abolished, the Bureau of the Budget has consistently reviewed and coordinated the hospital, convalescent, and domiciliary programs developed and operated by the departments and agencies of the federal government Therefore, it is hardly correct to contend that the program has not been mandated by the American people

It should be apparent from the foregoing that the total number of veterans is not synonymous with the number of veterans eligible for hospitalization in the VA hospitalization program and that even war veterans are not unconditionally eligible for such care It should further be recognized that a high percentage of war veterans, because of income status and the "inability to pay' oath requirement, will be unable to obtain these hospitalization benefits

As of Nov 30, 1954, the VA hospital patient load included 53 5% who were receiving treatment for non-service-connected disabilities These patients, in addition to meeting other requirements, had signed an affidavit of inability to defray the cost of hospitalization Of this group, a number equal to 32 8% of the entire patient load was comprised of patients under treatment for 'chronic' disabilities, such as tuberculosis, psychosis, or other conditions which had kept them in a hospital for at least 90 days The remaining 20 7% of the entire patient load was being treated for non-service-connected disability which was categorized as "nonchronic,' and almost half of these (9 4% of all VA patients) were in receipt of or had formally applied for a VA pension for non-service-connected disability To receive, or be eligible for, such pension carries a double connotation of medical indigency 1 The veteran must have a condition which is permanently and totally disabling and which interferes with the earning of a livelihood 2 The veteran cannot have an income of more than $1,400 if single, or in excess of $2,700 if with dependents More than one-half of this group of veterans were hospitalized for cardiovascular disease, cancer, neurological disease, or arthritis, and it appeared likely that the majority would require prolonged or repeated hospitalization Another 1 2% of the total VA patient load had filed claims for a service-connected disability This left 10 1% of the total hospital load who were being treated for a non-service-connected condition and who were under treatment for less than 90 days The VA experience indicates that about one-fifth of them would actually be patients who presented chronic' illness The chronic nature of the VA patient load was reflected in some measure by the fact that 64 6% of the patients in VA hospitals on Nov 30, 1954, had already been on the hospital rolls more than 90 days, and 49% had been hospitalized for more than one year It is also significant to note that the President's Commission on Veterans Pensions found (April, 1956) that almost 30% of the present pensioners have no income other than their veteran's pension and that less than 2% have incomes which come close to the present annual income limitations of $1,400 and $2,700

In light of the foregoing, one might reasonably question the intent and perspective reflected in the A M A official policy statement, quoted in the manuscript in question, regarding "whether the federal government should continue to engage in a gigantic medical care program in competition with private medical institutions", and the further statement, "whether the ever increasing cost of such a program is a proper burden to impose on the taxpayers of the country", and the further statement that "preferential treatment for veterans with these non-service-connected disabilities cannot be continued indefinitely, in view of its detrimental effect on the health and the economy of the entire nation"

The "competition" is hardly financial where the patient cannot afford the care, and, if the hospital care is conceded to be a necessity—and no one seems to contend otherwise—then funds must be forthcoming from either charitable, local, or federal sources, and, it is difficult to perceive how this program can be detrimental to the health of the nation, and, certainly the program requires a smaller percentage of the total national income than was the case 20 and 30 years ago

Aside from these considerations, the basic law provides that the statement under oath of the applicant who is otherwise eligible shall be accepted as evidence of inability to defray necessary expenses of hospitalization The General Accounting Office has investigated the application in practice of this 'inability to pay' statement, and its first report, dated March 11, 1953, was interpreted as indicating a possible abuse of the 'unable to pay hospitalization entitlement The VA then issued, on Nov 4, 1953, Circular 11 placing in effect an addendum to VA form 10-P-10, requiring veterans to answer, when executing affidavits of inability to pay, questions about income and net worth The purpose of this addendum was to focus the veteran s attention upon the propriety of his making an affidavit of inability to pay

The General Accounting Office, in February, 1956, submitted a further report, in response to a request from the House Committee on Veterans Affairs, on the financial status of veterans hospitalized for non-service-connected disabilities This report covered an investigation of 25,500 persons hospitalized for non-service-connected disability in general medical and surgical hospitals, and indicated that 217 of these persons had annual incomes of $3,500 or more (of which 186 had dependents, 44 were hospitalized for more than 30 days, and 87 carried medical insurance coverage) Chairman Olin Teague of the House Veterans Affairs Committee noted the alleged abuse of the VA hospital program by a small percentage of veterans who falsely state inability to pay for hospitalization, and the Veterans of Foreign Wars has approved efforts to correct such abuses

The VA hospitalization program is intended for the care of those with service-connected disabilities and for war veterans with non-service-connected disabilities who are unable to pay for such care The modernization of this program and its development as we know it today have come about only in connection with and as an outgrowth of the development of great hospital centers in our contemporary society This has followed the advances in medical knowledge and the pattern of extension of general benefits to all of the population over the years Other than these considerations, the VA hospital program has not changed materially in 30 years In fact it has become more difficult to obtain hospitalization for non-service-connected disability because of tautened administrative practices and because the proportion of beds to eligible veteran population has greatly decreased

The factor that has changed is the large increase in number of war veterans due to three great wars within the span of almost one generation Nevertheless, the numbers of veterans who can qualify for VA hospitalization benefits has not increased proportionally because of the limitations on income eligibility and the over-all increase in per capita income in this country It is difficult to perceive of how anyone can read into this program a trend to socialism It is in fact nothing more than an extension to the federal level of benefits for a group to whom the nation as a whole owes a debt, on a basis not materially different from that accorded at the state or local level, to citizens who qualify under laws of compensation or need In compensation cases, it is, at the federal level, analogous to the hospitals of private industry, of the individual states, and of the municipalities where used for similar purpose, and, in non-service-connected cases, it is analogous to the use of hospitals of states municipalities, and charitable institutions for those unable to pay for services received

To my knowledge no major veterans' organization has ever recommended that VA hospitalization benefits be extended to dependents of veterans, to farmers, to industrial workers, or any groups other than veterans of war in need, or veterans with service-connected disabilities No major veterans' organization has ever supported socialism in any form, and these organizations have, on the contrary, been opposed to it The Veterans of Foreign Wars at its 57th National Encampment at Dallas, Texas, Aug 12-17, 1956 resolved, that 'we resist without compromise all socialistic schemes at home'

It would appear that in our society as we know it today there is no question but that citizens in need thereof should be accorded hospital benefits, at the expense of others where required The proper general approach to making such benefits available to all citizens without cost to others is to promote those measures which provide an adequate income for all persons Great progress has been made in this direction in recent decades Until this goal is reached, however, there will be needy individuals who will require public assistance in their hour of need The federal government, for reasons which need not be elaborated here, but which surely have not been intended to lead to socialism, is engaged heavily in according such assistance to all citizens, as in the federal support for local hospital construction, for medical school support, for residency training of physicians, for public health service programs, and for medical research, to mention a few

There are good reasons why needy war veterans should continue to look to the federal government for non-service-connected hospitalization benefits These men have served their fellow men in time of war above and beyond the ordinary call of citizenship They have given of their health, their resources, and their time when other citizens have not so served, and economic resources have never been drafted The war veterans have offered their maximum gift at a time when the country was endangered, and under this program they are only being accorded limited health benefits in their hour of individual need This is in accord with the traditional American concept, dating back to the days of the Pilgrim Fathers, that those who have rendered special service to their country are entitled to special consideration The citizens who served in World War II and the Korean war did so with the understanding that the type of limited hospital benefit in question constituted a part of the over-all pattern of benefits which were established for the aid and relief of eligible veterans as a measure of the government's obligation and therefore at the public expense

Finally, it perhaps is not amiss to consider the moral and psychological implications for the future of any severe curtailment or restriction of this program In these days of tremendous social unrest, when great efforts are being expended to influence men s minds and win their allegiance, it would seem the height of folly to endanger a restricted but humane policy and program which so fully expresses the goodness, the humanity, and the moral leadership of this great country If we are to expect our citizens of the future to give of their lives, if necessary, to protect that which we hold dear, then we must leave them a heritage of fairness, humanity, and recognition for special service unstintingly rendered

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ANSWER TO LETTER FROM ROBERT A BELL, M D, VETERANS OF FOREIGN WARS

Basically, Dr Bell argues (1) that the present Veterans Administration hospitalization program has a mandate from the people, (2) that this program is still fulfilling its original purpose, (3) that eligibility of veterans for non-service-connected care is strictly limited by law and VA regulations, (4) that the VA s non-service-connected load is primarily chronic in nature and therefore a legitimate federal responsibility, (5) that the VA hospital system does not compete with private medical institutions, (6) that the care of veterans with non-service-connected disabilities is a legitimate federal duty, (7) that the VA hospitalization program cannot justifiably be charged with tending toward or indicating a trend toward socialism

In each of these points, Dr Bell is in disagreement with the statements in the address, each will be considered individually below

1 *Popular Mandate*—Dr Bell's argument that the present program has a popular mandate appears to be based solely on the fact that it is legal Congress passed the enabling acts and has, year after year, appropriated money for the program, the Bureau of the

Budget reviews the program consistently, these agencies are the agents of the people—therefore, "the present program represents the consensus of current public opinion"

Answer A program does not have "public support" merely because it lacks concerted public opposition That continued existence of a federal program proves popular consent is an essentially naive position With the vast amount of legislation considered by Congress each year, the average citizen becomes aware only of those programs given intensive national publicity But, as stated, "the facts and philosophy behind the VA program have never been brought clearly to the attention of the American people"

The President's Commission on Veterans' Pensions (Bradley commission) spent a full year in intensive study of nonmedical veterans' benefits and concluded

"Our present structure of veterans' programs is not a 'system' It is an accretion of laws based largely on precedents built up over 150 years of piecemeal development The public at large has taken little interest and the laws have been enacted in response to minority pressure There is, at present, no clear national philosophy of veterans' benefits"

2 *Original Purpose*—Dr Bell believes the VA has not wavered from the original purpose of the veterans' hospitalization program, the program "is intended for the care of those with service-connected disabilities and for war veterans with non-service-connected disabilities who are unable to pay for such care" In evidence, he gives the legislative history of veterans' care, beginning with the World War Veterans Act of 1924

Answer In 1917, when medical care for veterans at federal expense was first authorized, it was for service-connected disabilities only In 1923, due to the large number of vacant beds in federal hospitals, non-service-connected neuropsychiatric and tuberculosis care was authorized for veterans of the Spanish-American War, the Philippine Insurrection, and the Boxer Rebellion In 1924, non-service-connected care was authorized for veterans of any war since 1897, regardless of ability to pay—still because of empty beds (This is the point at which Dr Bell's historical note begins)

In 1926, the 1897 limitation was eliminated, but, in 1933, non-service-connected care was limited to veterans with tuberculosis, neuropsychiatric cases, or permanent disabilities In 1934, the present eligibility standards were established, under which the main limitations are available facilities and the veteran's inability to pay

These six legislative steps, from 1917 on, were itemized in the talk, they are repeated to show that veterans' hospitalization was originally provided for service-connected ailments only Non-service-connected care was added later, not as a basic purpose of the program, but as a supplementary benefit, intended primarily to utilize vacant beds

In 1949, Col George Ijams stated in testimony before a Senate committee that President Coolidge only approved treatment of non-service-connected cases by the (then) Veterans' Bureau hospitals when persuaded it would be cheaper than treating them outside the federal hospital system In July, 1953, Mrs Edith Nourse Rogers, Chairman of the House Committee on Veterans Affairs, presented at a subcommittee hearing a history of non-service-connected care which indicated that President Coolidge's primary interests in veterans' care were (1) treatment of service-connected cases and (2) utilization of the 9,500 federal beds vacant in 1924

The Veterans Administration itself appears to be uncertain as to the program's present purpose Early in 1957, Administrator Harvey Higley, testifying before the House Committee on Veterans Affairs, asked Congress whether new beds should be built for service-connected treatment only and what the VA policy should be regarding new construction for non-service-connected care—questions which are certainly not justified by the law itself

The history of veterans' hospitalization makes clear that the original purpose was to provide care for service-connected disabilities Care for non-service-connected ailments is one of the Bradley commission's "accretions," a byproduct resulting from the desire not to let beds go empty But, if the public is not informed as to the true facts, past construction for non-service-connected needs will become a precedent for future construction, and the program may expand on an "open-end" basis, with no limit in sight except the total number of veterans in the population

3 *Limitations on Eligibility*—Dr Bell disputes the statement (1955 Hoover commission report) that the Veterans Administration medical care program has a potential of 21 million beneficiaries, the limitations on non-service-connected care make this figure an exaggeration (no alternate estimate offered)

Answer Five factors affect the provision of non-service-connected care The applicant must have a condition requiring hospitalization, wartime service (not 90 days minimum, as Dr Bell states, but any wartime service), and a discharge other than dishonorable, he must be unable to defray medical and/or hospital expenses, and there must be a bed available in some VA facility, not necessarily in his state of residence (in 1954 15% of VA patients discharged were hospitalized outside their own states)

Veterans may possibly be prevented by the first limitation from obtaining VA care for some minor ailments but it does not limit the potential number of beneficiaries, any veteran can, at some time in the future contract a hospitalizable illness At the beginning of this year, over 22,500,000 of the nation's 22,600 000 veterans had wartime service We do not have figures on the total number of veterans with dishonorable discharges, but less than 1 5% of the nearly 200,000 pension and compensation applicants in 1955 were rejected for this reason It seems obvious that these three "limitations" do not significantly reduce the potential patient load

Bed availability limits the amount of care which can be provided, not the number of veterans eligible for care—and the number of VA beds has been constantly expanding In 1940, there were almost 60,000 operating VA beds, in 1955, there were twice as many operating beds and 127,605 constructed beds Yet, according to the VA's own census (Nov 30, 1954), only 42,456 VA patients were then being treated for service-connected disabilities—less than the total beds 17 years ago Since 1940, the VA has made 60,000 new beds "available" for non-service-connected care

Obviously, when the number of eligible veterans increased, the number of VA beds followed suit, especially since our laws set no limit on VA hospital expansion In 1957 (as previously noted) the VA brought before Congress the question of further expansion

Ability to pay, therefore, becomes the significant factor in deciding the potential patient load But here the VA is not allowed, by its interpretation of the law, to determine eligibility, the veteran is his own judge Dr Bell says 'a high percentage of war veterans, because of income status and the 'inability to pay' oath requirement will be unable to obtain these hospitalization benefits " Income status is no barrier to entitlement, since there is no income level or, indeed, any objective standard by which it can be decided whether a veteran is able to pay The VA itself says that even the statement of assets and liabilities "may be used in no way whatever to deny hospitalization to a veteran " The statement of inability to pay is considered sufficient, and even overriding, evidence by the VA

How much meaning can this oath have, even to the honest veteran? The majority of patients sign it when applying for care—before diagnosis and treatment and before knowing how long they will be hospitalized They have no idea how much care will be needed, and certainly no idea of its cost or that of comparable private treatment A veteran in the middle-income group, with a family dependent on him, might (without any conscious dishonesty) decide he could not afford to pay for care which a non-veteran in similar circumstances would scrimp and save for or provide through voluntary health insurance—merely because the veteran has been convinced by years of speechmaking that he has "earned' lifetime special care

However you look at it, the "inability to pay" statement is an amorphous standard which, whatever else it does, does not automatically eliminate a "high percentage" of veterans Because it is a purely subjective gauge and because the veteran's judgment is based on inadequate knowledge of costs and of what he is really entitled to, almost any wartime veteran can convince himself he cannot afford private hospital care

I submit that the estimate of 21 million potential beneficiaries is quite valid Certainly the VA has not enough beds to hospitalize all 21 million simultaneously, neither does the United States have enough beds to hospitalize its 165 million, but we do not deny that any citizen is a potential hospital patient

Dr Middleton, chief of the VA's department of medicine and surgery, speaking before a subcommittee of the House of Representatives at the appropriations hearings on the fiscal year 1958 budget, said "We are confronted with the responsibility for the medical care, or possible medical care, of some 22 million veterans " The VA apparently accepts this as a valid estimate

As the veterans grow older and chronic diseases become more prevalent, more and more veterans will decide they cannot afford private care and more veterans will become actually eligible, by signing the oath Increased demand will lead to pressure for construction of more beds to accommodate these non-service-connected cases, this is the past history of the VA and it will be the future history, unless we act now

4 *Chronicity of VA Load*—Dr Bell quotes the VA figures which emphasize the "chronic' nature of the illnesses treated in VA hospitals, he seems to feel that, since so many veterans' disabilities are chronic (if we accept these figures), they are a legitimate federal responsibility

Answer The VA says "64 6 percent of the patients in Veterans Administration hospitals on November 30, 1954, had already been on the hospital rolls more than 90 days, and 49 percent had been hospitalized more than one year " Almost two-thirds of the daily patient load is, in other words, "chronic ' But only 32 8% of the patient load consists of "chronic" patients with non-service-connected conditions, the remaining 31 8% is a segment of the 38% treated for service-connected disabilities, 7 9% with service-connected disabilities but treated for non-service-connected ailments, and the 0 6% who were non-veterans, a total of 46 5% of the load Almost half the "chronic" cases have service-connected disabilities

Despite the emphasis on chronic cases in VA reports (the VA definition of "chronic" is discussed in a later section), roughly four patients of the VA with non-service-connected conditions are "nonchronic" to every six "chronic " But does chronicity, in itself, entitle a patient to federal aid?

The medical profession has never adopted the view that "chronic" patients should be federal wards In 1953, concerning the temporary exception to its policy on veterans' care made for neuropsychiatric and tuberculous disabilities, the A M A said, "The entire question of whether the care of these patients is a local or a federal responsibility must be reanalyzed by Congress (C)ommunity facilities must be developed under state or local administration for the benefit of all '

In November, 1956, the A M A advised the medical profession "While the present law exists, we should help assure that veterans whose illness constitutes economic disaster will not be displaced by those suffering short-term remediable ills that, at the worst, constitute financial inconvenience "

Here again exception is made in recognition of existing laws, not in principle The patient with a chronic condition is, admittedly, less likely to be able to pay than is the patient with short-term illness, but this probable inability to pay does not constitute an automatic lien on the federal government The question still remains "What is the proper source of care for the indigent patient?" Our answer still remains, "His own community '

In connection with chronic illness, it should be noted that the average age of the veteran patient is increasing In 1955, 15 8% of our veterans were 55 or over, and, by 1970, we will have over 2 million veterans aged 65 or more As the veteran ages, chronic illness becomes more likely and he is more likely to be unable to pay Is it not odd, therefore, that chronic disease accounts for a smaller part of the non-service-connected than of the service connected load? Might this not indicate that VA patients with non-service-connected conditions are admitted more on a basis of medical interest than of financial need?

5 *Competition with Private Institutions*—This disparity between the increasing age of the veteran population and the diagnoses prevalent among VA patients with non-service-connected conditions illustrates one area in which the VA is 'in competition with private medical institutions' Dr Bell implies that "competition can only be financial, if these patients say they are unable to pay, private medical institutions lose no money and, he says, the VA does not compete

Answer The American Medical Association does not oppose VA non-service-connected care merely because some VA patients might be able to afford private care The VA's competition with private institutions is much more basic, and affects the health of the whole nation

The nature of this competition was indicated at least three times in the address

(a) In 1953, the A M A discussion of neuropsychiatric and tuberculosis care requested congressional reanalysis of responsibility for this care, noted that "community facilities must be developed under state or local administration for the benefit of all," and pointed out the detrimental effect on the nation's health and economy of preferential treatment for veterans with these diseases

(b) In Cincinnati, where the VA was determined to open a new, unneeded general medical and surgical hospital in an area adequately supplied with general medical and surgical beds (VA and non-VA), in spite of an acute need and a possibility of staffing for neuropsychiatric beds, the VA plan did not meet veteran needs and would aggravate health personnel shortages for the entire population of the area

(In January, 1957, this hospital, with 39 tuberculosis beds, 78 neuropsychiatric, and 346 general medical and surgical, reported 40 tuberculosis patients, 70 neuropsychiatric, and 319 general medical and surgical One-sixth of the tuberculosis load had service-connected conditions, one-third of the neuropsychiatric load, and 18 of the 319 general medical and surgical patients, less than 6%)

(c) In the summation "Through the VA program we are siphoning off personnel and facilities needed to develop adequate health facilities for all the American people, including the veterans and their families in their home communities'

These are the ways in which the VA competes with private medicine as an alternate source of care for one eighth of the population, making less urgent the pressure on states and communities to provide adequately for their own citizens, by creating an artificial personnel shortage, and by creating two medical systems and two classes of patients and thus interfering with the development of better care for all citizens In addition, in its increasing emphasis on the acute non-service-connected case, it competes with nonfederal postgraduate training programs, which serve all citizens, not merely one class

The medical profession opposes, not competition for the patient's dollar, but competition for the taxpayer's dollar—because funds which have gone to the VA for treatment of non-service-connected cases and for construction of new VA facilities in which to treat them could and should have been spent at the state and local level for care of all indigent citizens and for adequate facilities for the whole community

Nonetheless, a comprehensive answer to the denial of VA financial competition must point out that the VA program is, in at least one facet, in direct financial competition with private physicians and hospitals The law says that veterans without service-connected disabilities are eligible only if unable to pay for care, yet the VA has consistently admitted and treated veterans for disabilities or illnesses covered by workmen s compensation and health insurance, and has presented bills for such treatment, a practice which the A M A considers unethical and in direct violation of the stated intent of the law During fiscal year 1955, the VA collected almost 4 million dollars from nonfederal sources for medical care, most of which was collected under hospitalization contracts

6 *Federal or Local Responsibility*—Care should certainly be provided for indigent patients, but we do not agree with Dr Bell that it is irrelevant whether it be provided at the local or federal level The A M A firmly believes that indigency is a community responsibility and that local administration is not only proper but also more efficient and more economical, as well as more fair to the citizen who is not a veteran, but is just as sick and broke as any man who served in uniform

Within the community, all patients who receive publicly financed medical and hospital care because of indigency should receive equal benefits, according to their need This is possible only when the community accepts its full responsibility and all care is administered at the local level, through local physicians and hospitals

Dr Bell considers VA care as 'nothing more than an extension to the federal level of benefits for a group to whom the nation as a whole owes a debt, on a basis not materially different from that accorded at the state or local level, to citizens who qualify under laws of compensation or need He considers veterans compensation (payment for service-connected disability) analogous to workmen's compensation in private industry and "in non-service-connected cases it is analogous to the use of hospitals of states, municipalities, and charitable institutions for those unable to pay for services received

Answer Here is the crux of the disagreement Must we divide our population into two groups, a privileged class who served in uniform and a "second-class group who did not, because of age, physical disability, essential occupation, or even the arbitrary choice of the Selective Service System? The Bradley commission feels that 'The Government's obligation is to help veterans overcome special, significant handicaps incurred as a consequence of their military service. The objective should be to return veterans as nearly as possible to the status they would have achieved had they not been in military service.'

This is a clear statement of the debt owed the veteran: full repayment for whatever adverse effect military service has on his future life. If non-service-connected care is payment of a debt, then all hardships a veteran encounters must be taken as resulting from his military service; we must believe that veterans are under a lifetime handicap—which most veterans themselves deny.

Arguments for non-service-connected care resemble that anomalous creature which is *neither fish nor flesh* nor fowl. If military service is the basis of entitlement, then the program is unfair to veterans who elect to pay their own way; if indigency is the basis, how does the veteran's indigency differ from the nonveteran's?

Service-connected compensation is not merely 'analogous' to workmen's compensation; it is workmen's compensation for injury sustained as an employee of the nation. Non-service-connected care is not merely "analogous" to local indigent care; it is indigent care, but, for some unspecified reason, as a federal *rather* than a *community responsibility*.

If veterans are a special class of citizens (which is contended by certain groups, and put in practice by providing special care for veterans only, at the federal level, without regard to the origin of their disabilities), then, by logical extension, why limit it to those who cannot pay? If the sole basis of this care is indigency, then the federal government has usurped a responsibility of the state and the community.

Citizens in need of hospital care should receive it, at the expense of others if necessary, and we should work for medical and economic progress for all. But progress toward health should be through the state and community, not as a federally regulated, administered, and organized program, independent of and in competition with local governments.

7. *Road to Socialism.*—Dr. Bell states that, to his knowledge, no major veterans organization has proposed broadening federal medical care coverage or supported socialism in any form. The A. M. A. has not stated or implied anything to the contrary nor was any group accused of such actions in the address.

Nonetheless, it is still true that one natural result of class legislation is that the nonprivileged classes desire equal benefits for themselves. Farmers and factory workers contributed to our war effort, often at sacrifice to themselves; in time of need, they may well ask why they must use up their savings, borrow or seek public aid for hospital care while the veteran without service-connected disabilities receives free care at their expense.

Continuation of the Veterans Administration's medical care program for non-service-connected disabilities and expansion to meet the expected increase in demand by eligible veterans certainly provides a pretext for this sort of pressure toward state medicine from nonveterans. Taking this pressure together with the VA's already great encroachment on the responsibilities of the communities and states, it is impossible to deny the danger inherent in the program. The medical profession does not accuse the veterans or the VA of planning or attempting to socialize this country—but, regardless of intent, the VA's present program and philosophy is well on the road which leads to that end. The American Medical Association is, therefore, attempting to persuade the public, veteran and nonveteran alike, to stop and read the sign-posts, before we reach the point of no return.

Statistical Disagreements

The questions of policy and philosophy discussed above are more important and basic than the statistical material used to indicate the magnitude and future trends of the VA hospitalization program. We will confine our comments, therefore, to the four factual arguments which Dr. Bell seems to feel contradict or militate against the address: (1) the VA one-day census of patients, (2) VA costs in relation to national income, (3) the General Accounting Office investigation of abuses, (4) VA beds in relation to veterans. (Paragraph numbers in the following section refer to the paragraphs in Dr. Bell's letter.)

1. *One-Day Census.*—"As of Nov. 30, 1954, the Veterans Administration hospital patient load included 53.5% who were receiving treatment for non-service connected disabilities." (Par. 9.)

This and the remainder of the paragraph is taken almost verbatim from the VA Administrator's report for fiscal year 1955, page 22. However, Dr. Bell has missed the breakdown of the other 46.5% of VA patients on page 21, which comprises 38% receiving treatment for service connected disabilities and 7.9% with service-connected disabilities but hospitalized for non-service-connected ailments, as well as 0.6% nonveterans. Added to the 53.5% quoted above, this 7.9% gives a total of 61.4% hospitalized for treatment of non-service-connected disabilities, as stated.

Size of Chronic Load. The VA considers the one day census a fair means of estimating the average distribution of the patient load, yet makes "certain observations" concerning the 20.7% cases classified as nonchronic and non-service-connected. The VA speculates that many of these will become chronic cases, either because they are disabled (degree of disability unstated) or because experience has shown that one tenth of these patients (2% of the total load) will require more than 90 days of care. The net effect of this speculation is to give the impression that there are more chronic cases than are listed under this heading in the census breakdown. Such a conclusion is out of place and misleading, since, if the one-day census method is valid (as the VA claims) it will not be when distorted by inserting predictions as to the future of individuals.

It should also be noted that a chronic illness is, for the VA, defined by the patient's hospital stay: any patient who spends 90 days or more in a VA hospital is considered chronically ill, although the 90 days may include "3-day passes" out of the hospital, diagnosis, treatment, and rehabilitation. Compare this with the non-VA chronically ill patient, whose condition is diagnosed and who is rehabilitated on an office or outpatient basis and is considered hospitalized only while he is in the hospital

2 *VA Costs and National Income*—Disagreeing on increasing VA costs, Dr Bell says, "certainly the program requires a smaller percentage of the total national income than was the case 20 and 30 years ago' (Par 11)

Federal sources state that national income in 1933 was 39 384 billion dollars and in 1955, 324 028 billion, the cost of VA medical and hospital care in 1934 was $37,038,000 and in 1955, $748,739,000 In the two decades, income increased about 8¼ times, VA medical costs over 20 times

Dr Bell may be thinking of the argument popular several years ago, that the VA expended a smaller percentage of the national budget than in the 30s—ignoring, of course, the fact that the comparison was between a peacetime and a wartime budget Even in terms of budgets, federal appropriations increased only about 9 times from 1934 to 1955, roughly in proportion to national income, and still very much out of proportion to VA medical increase

3 *General Accounting Office Investigation*—Dr Bell quotes this investigation to prove indigency for the majority of VA patients with non-service-connected cases—a question which neither the address nor A M A policy has disputed However, for the sake of accuracy, I should point out that the General Accounting Office report mentioned by Dr Bell (Par 13) concerns two surveys one based on investigation of 1,100 cases, to determine the financial condition of veterans who said they could not pay, and one based on 25,500 cases, to determine the accuracy of the veterans' statement of assets and liabilities In quoting the General Accounting Office report, Dr Bell has somehow combined the number of cases studied in the second survey with the conclusions drawn from the first, actually, the office reported 217 out of 1,100 (not 25,500) had annual incomes of $3,500 or more, 176 had net worths of over $5,000

4 *VA Beds in Proportion to Veterans*—Dr Bell Bell states (Par 14) that hospitalization for non-service-connected ailments is more difficult to obtain because of "tautened" administration and "because the proportion of beds to eligible veteran population has greatly decreased"

In 1926, when all 5 million veterans were unconditionally eligible for federal care, the system had 20,600 beds, in 1956, with a veteran population of 22,250,000, the VA had some 126,700 beds In the past 30 years, although the veteran population has increased only 4 4 times and eligibility has been "curtailed,' the veterans' hospital system has grown over 6 times as large

Conclusions

It is true, as Dr Bell points out in closing, that many veterans have been led to believe that they have a right to receive complete medical care for life in payment for the time they spent in uniform, whether or not they suffered any harm in service This is true to such an extent that some veterans consider the 'statement of inability to pay a mere formality

Yet the law is clear non-service-connected care is to be provided only in unused beds in "existing facilities', the primary purpose of the VA hospital system is the care of service-connected disabilities This should mean that, as long as we have sufficient beds for service-connected cases, no new construction is needed and non-service-connected care will be provided only in the beds left empty when all service-connected cases are admitted Yet the VA has, instead, built three times as many beds as it needs for all service-connected care and now asks Congress whether it should build more for non-service-connected cases We may well ask what Congress means by "existing facilities"!

Is this the program which has not changed materially in 20 years? Can we possibly accept the statement that "The public, however, has not permitted or authorized an unrestricted hospitalization program"? Would it not be more accurate to say that the program first authorized in 1917 and amended in 1923, 1924, 1926, 1933, and 1934 has grown almost beyond recognition, not only without the authorization but almost without the knowledge of the people?

"If we are to expect our citizens of the future to give of their lives, if necessary, to protect that which we hold dear, then we must leave them a heritage of fairness, humanity, and recognition for special service unstintingly rendered" The medical profession has never opposed the idea of fairness, humanity, or special recognition for special service It is for this reason the medical profession has worked unsparingly to improve the treatment program for veterans with service-connected disabilities

But is all military service special service? Is it fair to say that any man who wears his country's uniform in time of conflict becomes thereby a ward of the government? Is it fair to say that our future citizens must be bribed to defend their country?

Or is it more just and prouder to say, with General Bradley, that 'military service in time of war or peace is an obligation of citizenship and should not be considered inherently a basis for future Government benefits The performance of the DUTIES OF CITIZENSHIP cannot be expected to be painless or free from sacrifice We believe, with the Bradley commission, that "what best serves the Nation in the long run will be in the best interest of the Veterans' President Roosevelt, over 20 years ago, expressed the same idea when he said

' no person, because he wore a uniform, must thereafter be placed in a special class of beneficiaries over and *above all other* citizens The fact of wearing a uniform does not mean that he can demand and receive from his Government a benefit which no other citizen receives"

We believe that our veterans are free men, who fought to keep their country free, not mercenaries, whose bravery and loyalty depends on the amount of spoils promised them

Louis M Orr, M D
Chairman, Committee on Federal
Medical Services

MEDICINE AND THE LAW

This is the 11th in a series of articles dealing with medical professional liability An editorial (page 360) and a chronological resumé (page 364) appeared in THE JOURNAL, *Feb 2 The preceding articles in this series have been published weekly in* THE JOURNAL *from Feb 9, 1957, to April 6, and since then intermittently*—ED

HOW STATE MEDICAL SOCIETY EXECUTIVES SIZE UP PROFESSIONAL LIABILITY

During the past five years, there has been an increasing amount of interest and discussion in medical circles concerning medical professional liability Personal opinions have been plentiful, however, authoritative answers on most phases of the subject have been few

Why are physicians interested in the professional liability situation outside their immediate geographical area? One reason is that judgments and settlements in one state may be used as a precedent for future decisions and settlements in others Another reason is that many physicians are in a quandary as to how much professional liability insurance they should carry This decision, a personal one for each physician, is affected, in part, by the trend of medical professional liability claims and suits over the United States

This is a report of the answers and attitudes of state medical society representatives, revealed in a survey on these problems It is one part of the over-all survey of professional liability made by the Law Department The other reports on the results of the survey will be published in this column in subsequent issues of THE JOURNAL

During the late part of the summer of 1955, a three-part questionnaire on professional liability was sent to the medical societies of the 48 states and District of Columbia Subsequently, this same questionnaire was sent to the Alaska and Hawaii medical societies Replies, although in some instances incomplete, were received from all except those in Alaska, Idaho, Louisiana, and Maine The questionnaire was answered by society secretaries, executive secretaries, chairmen of committees concerned with professional liability, attorneys for state societies, or insurance representatives Here is what they had to say on the subject

What are the most common causes of professional liability claims against physicians in your area?

Since the responses to this question are quite varied, they have been grouped in categories Table 1 shows the number of times each cause was mentioned

Excluding the miscellaneous category, it will be noted that approximately one-third of the causes listed have nothing to do with the medical care and treatment given by the physician They relate to the ability of the physician to "get along" with his patients and/or other physicians

What have been the effects of professional liability claims and suits on the reputation and on the practice of the physician involved?

A few medical society spokesmen explained that in the smaller communities in their state the effects of such claims and suits were more pronounced than in larger communities Two responses indicated that the effect depended upon the amount of publicity given the case A few responses disclosed that the effects were more adverse if the physician had previously been the subject of a professional liability claim or suit (table 2)

What has been the duration of the effects of claims or suits on a physician's practice and reputation?

The responses to this and the preceding question, although acknowledgedly only the opinion of the person filling out the questionnaire, would seem to contradict the widespread belief that a professional liability claim or suit seriously and permanently damages the physician's reputation (table 3)

Is professional liability insurance readily available in your state?

Without exception, all state society representatives replying to the questionnaire indicated that medical professional liability insurance was available to the physicians in their state Furthermore, all of them except two stated that it was not difficult to obtain One indicated that physicians in certain specialties had difficulty, and another said that difficulties had been encountered by physicians who had had a previous claim or suit brought against them

What are the limits of professional liability insurance carried by physicians in your state?

The limits of coverage listed vary widely within a state and within the different types of practice It would appear, from the answers given, however, that the average (median) coverage across the country for general practitioners is $25,000/$75,000 and for surgeons and other specialists $100,000/$300,000, this first figure in each instance representing the yearly maximum coverage for one claim or suit and the second figure, the yearly maximum coverage for all claims and suits

How many insurance companies write professional liability insurance in your state?

According to the responses to this question, there are at least 45 carriers writing medical professional liability insurance in the United States One company operates in at least 28 states, 26 companies are active in only 1 or 2 states, and the remaining 18 companies fall between these limits

Breaking these figures down, we find that, of the 18 companies, one writes insurance in 25 states, one in 20 states, one in 15, two in 14, one in 10, one in 9, two in 6, one in 5, four in 4, and four in 3

In nine states there is only one company writing such insurance, while one state has 19 active carriers The remaining states have between 1 and 19 carriers writing medical professional liability insurance

Thirteen state societies indicated that they have a form of group insurance for their membership One carrier writes this type of insurance in five states, whereas the other states' policies are underwritten by different companies

TABLE 1 —*Causes of Professional Liability Claims*

Causes	No of Times Listed
Poor results and/or failure in fields of	
Surgery	23
Orthopedics (including surgery)	14
X ray and therapy	9
Diagnoses	9
Medicine	8
Obstetrics and gynecology	6
Anesthesia	6
Eye ear nose and throat	1
Excessive fees and/or efforts to collect fees resulting in counterclaims	16
Careless remarks made by other physicians	13
Poor rapport between physician and patient	4
Abandonment	8
Miscellaneous	22

Does your association have a claims-prevention program?

Twenty-one societies stated that they have a claims prevention program California, Colorado, Connecticut, District of Columbia, Georgia, Kansas, Minnesota, Missouri, Montana, New Hampshire, New Jersey, New York, North Carolina, Oklahoma, Rhode Island, South Dakota, Utah, Virginia, Washington, West Virginia, and Wyoming

What does your claims prevention program consist of?

Of the 21 societies with claims prevention programs, 15 offer an education course to their members These societies are those in California, Colorado, Connecticut, District of Columbia, Georgia, Kansas, Montana, New Hampshire, North Carolina, Oklahoma, Rhode Island, Utah, Virginia, Washington, and West Virginia

Listed below are the other activities mentioned a one-day course held twice a year for new members, with lectures on problems relating to claims, one or two medical society meetings each year dealing exclusively with medical professional liability, discussions of professional liability hazards at county and state meetings, courses offered senior medical school students, round-table discussions for interns and residents, indoctrination lectures for new members on admission to the society, and panels of physicians and attorneys discussing the problem

TABLE 2 —*Effects of Claims and Suits on Reputation and Practice of Physician Involved*

Effects	No of States
None	20
Very little	10
Some	1
Varied	10
No answer	10
Total	51

In addition, many societies publish articles on the subject in their medical journal and distribute copies to their membership A few states, as part of their claims prevention work, are attempting to improve the safeguards of professional work in hospitals and to improve public relations and doctor-patient relationships

Does your association have a claims review program?

Thirty-one replies indicated that a claims review program was in operation at the state or county level Such programs exist in Arizona, California, Colorado, Connecticut, District of Columbia, Georgia, Hawaii, Kansas Kentucky, Maryland, Massachusetts, Minnesota, Mississippi, Missouri ,Montana, Nebraska, New Hampshire, New Jersey New York, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Utah, Virginia, Washington, West Virginia, and Wyoming

TABLE 3 —*Duration of Effects on Physician s Practice and Reputation*

Duration of Effects	No of States
Extend over several years	5
Not more than two years	1
Not at all lengthy a matter of months or weeks	32
Unknown	2
No answer	11
Total	51

What does your claims review program consist of?

The claims review programs are handled by claims review boards, committees, or administrators on a statewide or county basis These committees and boards consist of from 3 to 14 physicians Only one board had lay members, and this board had two such members The members of these committees and boards are usually appointed by the president or the council of the society for a period of one, two, or three years They review professional liability claims brought against the members and recommend whether the claim should be settled or defended Some of the boards or committees act only if requested to do so by the defendant physician Some permit legal counsel and representatives of the insurance carrier that underwrites the defendant physician's professional liability insurance to participate Some committees arrange for expert medical witnesses—others do not

Does your society provide expert medical witnesses in litigated professional liability cases?

Twenty-three respondents said that their societies did not provide such witnesses Twenty said that they would provide expert medical witnesses, and eight states did not reply to this question

The states providing expert medical witnesses are Arizona, California, Georgia, Illinois, Kansas, Kentucky, Maryland, Minnesota, Mississippi, Montana, New Hampshire, New Jersey, New York, North Carolina, Oklahoma, South Dakota, Tennessee, Utah, Washington, and West Virginia

Do any of the county medical societies in your state have claims prevention and/or claims review programs?

County medical societies in 15 states and Hawaii have claims prevention or review programs, and in 26 states they do not We have no information concerning the situation in the other nine jurisdictions Claims prevention and/or claims review programs have been established by county medical societies in Arizona, California, Connecticut, Georgia, Hawaii, Montana, New Hampshire, New Jersey, New York, Oklahoma, Pennsylvania, Tennessee, Utah, Virginia, West Virginia, and Wyoming

Does your state medical association provide its members with group insurance, or does it approve such insurance?

The members of 13 state societies may obtain a form of group professional liability insurance protection through their state societies Two state societies recommend to their membership two or more approved policies, and 28 societies do not do either of these things Eight societies did not respond to this question

Did your association ever have a group policy or an approved policy? Why were such policies discontinued?

Respondents in 23 states indicated that their state associations had previously had a group or approved policy, 22 said that they never had such policies, and 6 did not answer the question

Following are some of the reasons given for terminating these group programs The insurance carrier discontinued group coverage, no particular advantage demonstrated under the group policy, unsatisfactory experience, high loss ratio, not enough physicians participated, and group coverage held by state insurance department to be illegal

Two responses were more specific in answer to this question One stated that the physicians criticized the group program and grew resentful when the agent of the carrier pressured them to carry other types of insurance coverage The other said that the rates were too high, that all of the participating members were being penalized because of a few habitually bad risks, and that the insurance company paid off claims to prevent suits without consulting the society, contrary to their agreement

Did your association ever consider the adoption of a group professional liability insurance policy or approved policies?

Associations in 36 states have, at some time, considered the adoption of such policies, 7 never have, and 8 societies did not reply to the question

State the reasons for not adopting a group or an approved policy

Respondents of some of the state associations that did not adopt a group or an approved policy after considering it submitted the following reasons for the association s action members wanted insurance to be handled by agent of their choice, suggested agent or carrier not licensed in state, group insurance contrary to state regulations and insurance laws, physicians did not want to be dependent upon one company for this insurance, society did not want to say that one insurance carrier was better than another, advantages to participating in group insurance not demonstrated, and high premiums, no carrier would underwrite a group policy in the state, and society not of sufficient size to make adoption feasible

How many county medical societies in your state offer a group or an approved policy to its members?

A group professional liability insurance program is offered to the members of a county society in one state, while, in another state, some of the county societies offer a group program, and another county in the same state has approved two policies

Summary

State medical society officials executing the questionnaire expressed the belief that generally a medical professional liability claim or suit does not have a serious or extended effect on the physician s practice or reputation They also feel that professional liability insurance is generally not difficult to obtain Nevertheless, the state societies recognize the importance and seriousness of this problem, and many have adopted claims prevention and claims review programs It is interesting to note, however, that there are 31 review programs and only 21 claims prevention programs The responses to the questionnaire indicated a need for a more systematic and thorough type of claims prevention program in the majority of the states

MEDICAL NEWS

ALABAMA

First Annual Joint Meeting—The medical staff of Redstone Arsenal and the Madison County Medical Society were joint hosts to the first annual Madison and adjoining counties medical meeting March 27 at Redstone Arsenal, Huntsville About 100 doctors from the six county area and nine out-of-area guests attended Preventive Medicine in Action' was the theme for the day The trip to the water treatment plant had two special features an explanation of the fluoridation process and a demonstration of protective equipment in use at Redstone The group saw a demonstration of the procedures in preparing to fire the Corporal Missile At the Army Hospital, they reviewed the medical program and the occupational health service

The evening session began with a cocktail hour, followed by a banquet, at which Dr W H Stallings, was master of ceremonies Maj Gen John B Medaris, commanding general, Army Ballistic Missile Agency, commented on preventive medicine and occupational health services Dr Logan T Robertson, Asheville, N C, in an illustrated address, emphasized the importance of preventive medicine in today's rapidly growing industrial world

The president of the Madison County Medical Society is Dr Grady Huckaby The Plans-Arrangements Committee comprised Dr Burton S Shook, Dr Norton E Cowart, and Capt John White, M C, U S Army The Protocol-Decorations Committee comprised Dr Otis F Gay, Capt John Sims, M C, U S Army, and Dr A L Watson

CALIFORNIA

Personal—Dr Harold G Trimble associate clinical professor, Stanford University School of Medicine, San Francisco, recently toured the Far East to discuss tuberculosis therapy in the United States In New Delhi, he addressed the 14th International Tuberculosis Conference on The Dynamic Approach to Pulmonary Tuberculosis—1957 Later he lectured at medical centers and universities in Manila, Calcutta Bangkok, Hong Kong, and Tokyo Dr Trimble is a past-president of the American Trudeau Society and the California Tuberculosis and Health Association

Postgraduate Conference in Medicine—Stanford University School of Medicine will present a postgraduate conference in medicine from the afternoon of June 13 until noon, June 15, 1957 Registration is unlimited and will be open to doctors of medicine The fee is not known The conference will offer lectures and panel discussions presenting the practical approaches to common problems in cardiovascular disease, endocrinology, infection, and hematology Diagnosis and treatment will be emphasized Information may be obtained from the Office of the Dean, Stanford University School of Medicine, 2398 Sacramento St, San Francisco 15

CONNECTICUT

Professor Cowgill Honored—At the annual meeting of the American Institute of Nutrition in April, the annual Osborne and Mendel award was presented to George R Cowgill, Ph D, professor of nutrition, Yale University School of Medicine, New Haven The award consists of a cash prize and a scroll The citation called attention to Dr Cowgill's 'many pioneer and subsequent fundamental research contributions to our knowledge of the B-vitamins and of protein' Dr Cowgill received his Ph D at Yale in 1921 and has been a member of the Yale faculty ever since This award is named in honor of two distinguished scientists in the field of nutrition, Thomas B Osborne, former research chemist at the Connecticut Agricultural Experiment Station, New Haven, and Lafayette B Mendell, former professor of physiological chemistry at Yale Both men, now deceased, were Yale graduates

ILLINOIS

Chicago

Dr Newman Honored—Dr Louis B Newman, chief, physical medicine and rehabilitation service, Veterans Research Hospital, Chicago, has received the distinguished service award from the Illinois Institute of Technology for his outstanding service in physical medicine and rehabilitation Dr Newman received his M D from Rush Medical College in 1931, and an M E from Illinois Institute of Technology, in 1921 A former naval commander, he is also on the faculty at Northwestern University Medical School

Personal—The James Alexander Miller fellowship for the year beginning July 1 has been awarded to Dr John E Kasik, a senior assistant resident physician in the department of medicine at the University of Chicago The grant of $7,000 is made yearly by the association to support fundamental medical research in tuberculosis The antituberculosis drug, cycloserine, will be the subject of Dr Kasik's research ——Dr Maurice S Mazel, of Chicago, spoke on "Surgical Treatment of the Coronary Artery Disease Problem' at the 50th annual convention of the Philippine Medical Association recently held in Baguio City

Lasker Award to Dr Katz—The American Heart Association recently bestowed the Albert Lasker Award on Dr Louis N Katz, director, cardiovascular department, Medical Research Institute of Michael Reese Hospital The award consists of three parts, a check for $1,000, a gold replica of the Winged Victory of Samothrace, and a citation Dr Katz has been

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health Programs should be received at least three weeks before the date of meeting president of the American Heart Association and the Chicago Heart Association He was a founder and president of the American Association for the Study of Atherosclerosis, and he is permanent honorary president of the Inter-American Society of Cardiology

Chloroform and the Dedication of Guthrie Rock—Recently the Chicago Medical Society dedicated the relocation of a 40-ton granite rock of Laurentide glacier origin as a memorial to Dr Samuel Guthrie (1782-1848), the discoverer of chloroform The dedication took place in Pasteur Park, Wood and Congress streets Geologists estimated that the grey-red oval rock originated some 80 million years ago and that it was carried by the Laurentide glacier from the Waushara region in Central Wisconsin to Worth, Ill, a distance of more than 200 miles It was discovered in Worth in 1885 by Guthrie's grandson, Ossian, known as the father of Chicago's drainage system In 1903 Ossian Guthrie enlisted the aid of the Chicago Medical Society in an appeal to the South Park commissioners to have the rock placed at the lake front as a memorial Permission was granted, but when the rock arrived at the foot of Jackson Boulevard in 1904, the Park District refused to accept it The rock was taken to Rush and Ohio streets, while the controversy raged, and in 1912 it was placed in Washington Park, near 55th Street and South Parkway In 1931 the Chicago Medical Society attached a plaque describing its purpose A year ago the society undertook to have the rock moved to the West Side Medical Center, where it will be an inspiration to future as well as present members of the medical profession Doctor Guthrie, in 1831, isolated what Dumas three years later named chloroform It became known as Guthrie's sweet whiskey' Chloroform came into widespread use about 1847

INDIANA

Expand Medical Center Housing—Scheduled for completion early in 1958, an apartment housing unit is under construction at the Indiana University Medical Center, Indianapolis, as the first in a series of units designed to meet the housing problems of students and staff Plans also provide for a dormitory-type addition to the Student Union building, serving single students, and for additional apartment-type units in the future The four-story apartment building will provide 105 one-bedroom units The project is designed to alleviate a student housing problem at the Medical Center and provide additional housing for the first-year medical and dental classes which will be moved from the Bloomington campus to the Medical Center in the fall of 1958

Personal—Dr Josephine Van Fleet, formerly chief of laboratory service, Veterans Administration Hospital, Indianapolis, has been appointed director of the Bureau of Laboratories, Indiana State Board of Health, Indianapolis, succeeding Samuel R Damon, Ph D, who had served as laboratory director since 1946 —— Dr Naomi L Dalton, a native of Salem and graduate of Indiana University School of Medicine, Bloomington–Indianapolis, left Feb 20 for Vellore, India, where she will serve as instructor and anesthetist at Christian Hospital and College Dr Dalton was in practice in Bloomington from 1941 to 1953 and recently served as associate director of anesthesiology at Mississippi Medical College She will spend five years at the 560-bed hospital and college for medical students in South India

Dedicate Psychiatric Research Institute—Indiana's $1,500,000 building housing the Institute for Psychiatric Research was dedicated recently at the northwest corner of the Indiana University Medical Center, Indianapolis, adjacent to the state's Larue D Carter Memorial Hospital Dr John I Nurnberger is chairman of the department of psychiatry, at the School of Medicine Dr Daniel Blain, medical director, American Psychiatric Association, was principal speaker at the dedication Other speakers included Governor George N Craig, Dr Margaret Morgan, president Herman B Wells, of Indiana University, and Dr Nurnberger, who outlined the aims and objectives of the psychiatric research program The institute, a nonprofit organization, was established to receive gifts and other contributions for the support of research in mental illness

LOUISIANA

University News—Dr Derrick Brien Jelliffe, for the past two years in Calcutta, India, as WHO visiting professor of pediatrics at the All-India Institute of Hygiene and Public Health, has been appointed visiting professor of tropical medicine at Tulane University School of Medicine Dr Jelliffe has served as medical inspector of the Sudan Medical Service in Africa, as senior lecturer in pediatrics at University College in Ibadan, Nigeria, and at University College of the West Indies in Jamaica He is the author of Infant Nutrition in the Subtropics and Tropics' and founder and present editor of the *Journal of Tropical Pediatrics*, presently printed in London, although the editorial offices are at the Tulane Medical School

Course for Foreign Students—Specialized intensive courses in English and the basic sciences for the benefit of foreign students beginning graduate study in the medical sciences will be inaugurated by Tulane University School of Medicine, New Orleans, with the help of a five-year $182,000 grant from the Rockefeller Foundation William B Wendel, Ph D, professor of biochemistry has evolved a plan for a one-year intensive course beginning with English, advanced mathematics, and the principles of chemistry and physics in the summer In the final months emphasis will be placed on basic courses in biochemistry and on an introduction to a research problem The graduate school and the school of medicine will cooperate in offering the courses, which will be at the undergraduate or graduate level as needed

MICHIGAN

Research Center in Ann Arbor—Parke, Davis and Company recently announced the selection of a 50-acre site in Ann Arbor, near the University of Michigan campus, as the location for its new 10 million dollar medical research center The new structure is expected to be completed by early 1959 It will supplement the firm's present research facilities, directed by Leon A Sweet, Ph D, vice-president It is anticipated that the present staff of about 400 persons will be increased by "a substantial number of persons'

Personal—Wayne State University recently bestowed the honorary degree of doctor of arts on Dr Alfred Heacock Whittaker, Detroit, who has served as surgeon on the staffs of Evangelical Deaconess, Harper, Children's, and Detroit Memorial hospitals Dr Whittaker is also a commissioner on the Detroit City Plan Commission, president of Future Detroit, Inc, and medical advisor to the Franklin Settlement He is a former president and trustee of the Detroit Historical Society and the Economic Club of Detroit

Establish Physical Medicine Academy—Physiatrists in Michigan have organized an Academy of Physical Medicine and Rehabilitation incorporated under the laws of the State of Michigan The officers are Dr Max K Newman, president, Dr James W Rae, vice-president, Dr Frederic B House, secretary-treasurer, and Drs George H Koepke, Robert C Dean, and William C Schaefer, trustees The objectives of the academy are to promote the science and art of medicine and the betterment of public health through understanding and utilization of the functions and procedures of physical medicine and rehabilitation The registered office of the Academy has been designated as the University Hospital, 1313 E Ann St, Ann Arbor Communications may be sent to the Secretary, 326 N Ingalls St, Ann Arbor

MONTANA

Esophageal Speech Clinic—The Montana Society for Crippled Children and Adults plans an esophageal clinic for laryngectomized adults to be held at Billings, June 10-15 Five speech therapists will be available for intensive therapy The Montana Division of the American Cancer Society will cooperate with this project and will help defray transportation and maintenance costs for patients receiving therapy Physicians desiring registration blanks for laryngectomized patients or information are requested to write the Montana Society for Crippled Children and Adults, P O Box 861, Billings

Institute for Maternal Care—Representatives of the Maternal and Child Welfare Committee of the Montana Medical Association, the Montana League of Nursing, and the State Board of Health will sponsor an Institute for Maternal and Newborn Care for physicians and registered nurses June 9-12 at the Western Life Building, Helena The Institute will provide an opportunity for physicians and nurses to review trends and new concepts in medical and nursing responsibilities for maternal and newborn care Guest speakers will be Dr James B Arey, Philadelphia, pediatric pathologist, Temple University, Gertrude Church, Denver, nursing consultant, U S Childrens Bureau, Dr William P Given, New York, department of obstetrics, New York Lying-In Hospital, Vera Keane, New York, instructor-supervisor in obstetrics and gynecology, New York Hospital School of Nursing Registration fee is $15

NEBRASKA

Society News—The new officers of the Omaha Mid-West Clinical Society are Dr Charles F Moon, president, Dr Earl A Connolly, president-elect, and Dr Payson S Adams, secretary-treasurer The next annual clinical assembly will be at the Fontenelle Hotel, Omaha, Nov 4-7

Anatomy Teacher Honored—John S Latta, Ph D, chairman of the department of anatomy, University of Nebraska College of Medicine, Omaha, was awarded a personal prize for 'outstanding teaching' in the field of science at the 29th annual honors convocation in Lincoln recently The distinguished teaching award, a bronze medal and a $1,000 check, was presented to Dr Latta by the University of Nebraska Foundation Dr Latta has been associated with the department of anatomy at the College of Medicine since 1921, serving as chairman of the department since 1941

NEW HAMPSHIRE

Gordon Research Conferences—The Gordon Research Conferences will be held from June 10-August 30 at Colby Junior College, New London, at New Hampton School, New Hampton, and at Kimball Union Academy, Meriden The conferences were established to stimulate research in universities, research foundations, and industrial laboratories The purpose is to bring experts up to date on the latest developments, analyze the insignificance, and provoke suggestions as to underlying theories and methods of approach for making new progress Sufficient time is available to stimulate informal discussions Meetings are held in the morning and evening Monday through Friday, with the exception of Friday evening The afternoons are available for recreation, reading, or participation in discussion groups Information presented is not to be used without specific authorization of the individual making the contribution No publications are prepared as emanating from the conferences Attendance at each conference is limited to 100 For information write W George Parks, Director, Department of Chemistry, University of Rhode Island, Kingston, R I

NFW YORK

Residency in Neurology—A three-year approved residency in neurology has been inaugurated at the Bronx Municipal Hospital Center and the Albert Einstein College of Medicine The residency program is supported by a training grant from the National Institute of Neurological Diseases and Blindness The division of neurology of the department of medicine at present consists in three full-time physicians Drs Saul R Korey, Labe C Scheinberg, and Robert Katzman Two 60-bed wards will be assigned to neurology, with clinical research laboratories in direct conjunction with the wards In addition to the clinical training, an extensive fellowship program, in the sciences related to the nervous system, supported by the National Institute of Mental Health, is offered on an interdisciplinary basis

Personal—Dr Marc H Hollender chairman, department of psychiatry, State University of New York College of Medicine, Syracuse, has been given the additional appointment of director of Syracuse Psychopathic Hospital Dr Hollender previously served in Chicago, as associate professor of psychiatry at the University of Illinois College of Medicine, as a staff member of the Institute for Psychoanalysis, a senior consultant to the Veterans Administration Mental Hygiene Clinic, and a consultant to the Chicago State Hospital Dr Mary F Brew, who has been associated with the Syracuse Psychopathic Hospital since its opening, will remain as assistant director As director, Dr Hollender succeeds Dr Richard F Binzley, who has been serving as acting director since his appointment as assistant commissioner of the department of mental hygiene in October 1954

Nutrition Institute at Syracuse—The College of Home Economics, Syracuse University, and the Nutrition Bureau, New York State Department of Health, are sponsoring the 11th Community Nutrition Institute at Syracuse University for the 11th consecutive year June 17-29 The institute presents a public health approach to nutrition problems for nutritionists, physicians, nurses, dentists, dietitians, and health educators The institute will consider the effectiveness of public health nutrition programs, carbohydrate, fat, and protein metabolism, coronary heart disease and high protein diets, enzymes, hormones, and vitamins in the metabolism of protein, fats, and carbohydrates Panel discussions covering all topics are scheduled For information write Anne Bourquin, Ph D , Department of Foods and Nutrition, College of Home Economics, Syracuse University, Syracuse, N Y

New Mental Hospital in the Bronx—A hospital designed to provide the latest advances in the treatment of the mentally ill is to be built by the Department of Mental Hygiene of the State of New York at a cost of 70 million dollars on 125 acres of reclaimed marshland along the Hutchinson River Parkway in the Bronx It is the first new mental hospital to be built by the State in 25 years and will accommodate 3,000 patients Governor Averell Harriman pointed out that the location adjacent to the Albert Einstein Medical Center provided the basis for a mutually beneficial arrangement whereby the two institutions will cooperate Nearby also are the East Bronx General Hospital and the East Bronx Tuberculosis Hospital Facilities will be adequate for both inpatient and outpatient care, including a service which enables patients to spend the day participating in a regular therapeutic program and to return to their homes at night In addition to occupational therapy centers in the various patients buildings, a separate building will be provided for occupational therapy A central library will be supplemented by branch libraries Patients buildings will contain interior recreation areas Outdoor recreation areas will be adjacent to patients buildings Other features include a medical surgical building, geriatric building, a diagnostic clinic, research unit, and a community center containing an auditorium, chapel, and restaurant

Establish Alcoholism Program—A $168,000 program to attack the problem of chronic alcoholism through education, research, training, and clinical demonstration will be undertaken during the coming year by the New York State Interdepartmental Health Resources Board Fellowships will be made available to physicians, social workers, nurses, educators, and other professional personnel Priority will be given to persons who are participating or who plan to work in community education on treatment programs for so called problem drinking The board is already supporting an outstanding research project being conducted at the State University of New York College of Medicine, Brooklyn, under the direction of Dr Howard Potter, dean and director of psychiatry, and Dr Benjamin Kissin, internist The project will receive an additional grant of $80,000 from the State this year to conduct its research along various lines, including social, economic, clinical, psychiatric, and pharmaceutical aspects of alcoholism Assisting the board in the program development is an advisory committee of consultants representing psychiatry, internal medicine, the legal profession, and the courts Dr John L Norris, medical director, Eastman Kodak Company, Rochester, is chairman of this committee The board will continue for one additional year to provide financial assistance for the pilot demonstration alcoholism clinics One such clinic is operated in Rochester by the Tuberculosis and Health Association of Rochester and Monroe County, Inc The second clinic is operated by the Broome County Committee on Alcoholism, Inc , in Binghamton

New York City

Dr Landauer Honored—Dr Kenneth S Landauer, director, Respirator Center Services for the National Foundation for Infantile Paralysis, has received a citation from the medical directors of the nation's 15 respirator and rehabilitation centers The citation states that Dr Landauer's "selfless dedication to human service, vision and untiring efforts toward the accomplishment of the 'Respirator Center program have done much to remold our medical thinking'

Dr Davis Goes to Harvard—Dr Bernard D Davis has been appointed head, department of bacteriology and immunology, Harvard Medical School, Boston Dr Davis, currently chairman of the department of pharmacology, New York University College of Medicine, will begin his service at Harvard July 1 He succeeds Dr J Howard Mueller who served as chairman of the department from 1942 until his death in 1954 Dr Davis was commissioned in the U S Public Health Service in 1942 and was appointed in 1954 to a professorship at New York University College of Medicine

Study of Eczema in Infants —The University Hospital of New York University-Bellevue Medical Center has received a grant of $147,255 from the John A Hartford Foundation for a study of eczema in infants The following techniques will be used (1) skin tissues will be studied, (2) measurements will be made of specific food antigens and antibodies occurring in normal as well as in eczematous infants, and (3) a study will be made based on the thought that mineral and water metabolism and the amino acid metabolism may be concerned in the development of eczema Drs L Emmett Holt Jr , Adolph G G DeSanctis, and Lewis Thomas will direct the project

Rockefeller Institute Expands —The Rockefeller Institute will construct four new buildings with two gifts totaling 5 million dollars that have been received from the estate of the late Alfred H Caspary and from John D Rockefeller Jr The three million dollars from the Caspary estate will be used for a graduate student residence hall, an auditorium, and a president's house Alfred H Caspary Hall, which is under construction, includes an auditorium that will seat 500, six smaller auditoriums and conference rooms, and executive offices The Caspary gift is the largest contribution ever made to the institute from outside the Rockefeller family The Rockefeller gift provides as much as 2 5 million dollars for the construction and furnishing of a building to be known as Abby Aldrich Rockefeller Hall in memory of Mr Rockefeller's first wife The hall will serve as a social and residential center for scientists from all parts of the world who are visiting New York and for the institute faculty The building will contain facilities for 24 visiting scientists Alfred H Caspary Hall and Abby Aldrich Rockefeller Hall will fulfill four new functions in the development of the institute as an international science center (1) encourage scientists from all over the world to meet and live together for brief or extended periods of time in order to exchange ideas and synthesize important sectors of the rapidly accumulating mass of scientific knowledge, (2) transmit scientific knowledge to young people and the general public, (3) provide ideal facilities for meetings of scientific societies, (4) encourage the cultural life of the institute faculty Abby Aldrich Rockefeller Hall, Caspary Hall, and the 13-room president's house are scheduled for occupancy this summer Plans for the graduate residence hall are now in development

OHIO

Dr Macklin Receives Blackwell Award —Dr Madge T Macklin, research associate in medicine, Ohio State University College of Medicine, received the Elizabeth Blackwell award for outstanding contributions in the field of medicine recently The award was presented at the New York Infirmary, which was founded by Elizabeth Blackwell, first woman medical graduate, who received her M D degree in 1848 A graduate of Goucher College, from which she also received an honorary degree and a special citation, Dr Macklin received her medical degree from Johns Hopkins University, Baltimore Presently she is engaged in research in retinoblastoma

Personal —Dr and Mrs Michael Balint, of London, have been appointed, on a continuing basis, as visiting professor of psychiatry and as visiting associate professor of research in behavioral science, respectively, at the University of Cincinnati, College of Medicine They will be in residence in this center for one month each year, to give seminars on psychodynamics, individual psychotherapy, and group psychotherapy Dr Balint for many years was director of the Budapest Institute of Psychoanalysis At present Dr and Mrs Balint are in practice in London and are staff members of the London Institute of Psychoanalysis and the Tavistock Clinic

OREGON

Establish Cardiovascular Chair —The Oregon Heart Association has donated a chair of cardiovascular research to the University of Oregon Medical School, Portland Under the terms of the grant, the association will pay a portion of the salary of the man selected to fill the position and will contribute annually for other expenses including technical assistance, equipment, supplies, and travel to scientific meetings For information write the University of Oregon Medical School, 3181 S W Sam Jackson Park Road, Portland 1, Ore

Personal —Dr Merle W Moore associate head, division of allergy, University of Oregon Medical School, Portland, was named president-elect of the American College of Allergists at its annual congress in Chicago recently Dr Orval R Withers Kansas City, Mo , was named president Retiring president of the college is Dr Ethan Allen Brown, Boston —The appointment of Joseph D Matarazzo, Ph D , associate psychologist, Massachusetts General Hospital, Boston, as full-time professor of medical psychology at the University of Oregon Medical School, Portland, was announced recently The appointment becomes effective June 1

PENNSYLVANIA

Plaques for Centenarians —For the 10th consecutive year, The Medical Society of the State of Pennsylvania will present hand-lettered testimonial plaques to those residents of the Commonwealth who attain their 100th birthday The society requests that the names and date of birth of residents of the State who will be 100 years old in 1957 be sent to The Medical Society of the State of Pennsylvania, 230 State St , Harrisburg

Philadelphia

Student Loan Funds —Dr Herman Gold, Chester, has given $10,000 in stocks to the University of Pennsylvania to provide financial assistance to worthy students in the school of medicine through scholarship grants or student loans

Personal —Dr William Bates, Philadelphia, who retired two years ago as chairman, department of surgery, University of Pennsylvania Graduate School of Medicine, has been appointed director of medical education at the Harrisburg Polyclinic Hospital He is a past-president of the Philadelphia County Medical Society and a former member of the A M A House of Delegates

Course on Principles of Rehabilitation —Information has been sent to the Council stating that a course for physicians, Principles of Rehabilitation, will be conducted by the Rehabilitation Center of the Hospital of the University of Pennsylvania, June 17 to 21, in cooperation with the Office of Vocational Rehabilitation, United States Department of Health, Education, and Welfare The five-day course is designed to present the basic concepts of rehabilitation through lectures and demonstrations The instructional staff will include representatives from the various divisions of the University of Pennsylvania as well as guest lecturers

Provision for granting trainee stipends of $100 to persons attending the course has been made by the U S Office of Vocational Rehabilitation Registration will be limited Application for these stipends and requests for detailed information concerning the course may be addressed to the Rehabilitation Center, Hospital of the University of Pennsylvania, Philadelphia 4

WASHINGTON

Appoint Physical Medicine Professor —Appointment of Dr Justus F C Lehmann Columbus, Ohio, as the University of Washington Medical School's first professor of physical medicine and rehabilitation was approved January 12 Dr Lehmann has been associate director of the department of physical medicine and rehabilitation at Ohio State University since 1955 The new appointment is one of the final steps toward the establishment of a long-sought rehabilitation center at the university The rehabilitation center would accept patients, upon referral of the patients physician, from all parts of the State

WISCONSIN

Annual Clinical Day at VA Center —The Tenth Annual Clinical Day, Marquette University Medical School, Dean's Committee, will be held at the Veterans Administration Center in Wood, Wisconsin on June 22 A clinical program of some 21 ten-minute presentations in the fields of urology, medicine, dermatology, surgery, ophthalmology, and otolaryngology will be presented beginning at 8 45 a m The chairman of the Dean's Committee is Walter Zeit, Ph D, director, Department of Anatomy at Marquette University Medical School in Milwaukee

GENERAL

Louis Braille Award —Establishment of the Louis Braille Award to be presented annually in June by the Philadelphia Association for the Blind has been announced Any person or organization may be considered as a candidate The award shall be presented solely for achievement in the fields of prevention of blindness or services to the blind Nominations for the award may be made at any time during the year, but to be considered for selection for the calendar year, nominations must be received by the Board of Judges not later than June 10

For information write Thomas A Benham, President, Philadelphia Association for the Blind, 100 E Price St, Philadelphia 44, Pa

Decrease in Poliomyelitis —According to the morbidity and mortality weekly report of the U S Public Health Service, the number of cases of poliomyelitis reported in the first 19 weeks of this year in Continental United States was 783, as compared with 1546 cases reported for the same period of 1956 For the week ending May 11, 1957, the total number of cases was 71, as compared with 85 cases for the same week in 1956 Of the 71 cases, 26 were paralytic, as compared with 40 paralytic cases for the same week in 1956 Of the 71 cases, 18 were reported from California and 15 from Texas

Winners of Dermatological Essay Contest — The American Dermatological Association announces the following awards in its annual essay prize contest first prize, $500, to Drs Peter Flesch and Elizabeth C Jackson Esoda, Philadelphia, for "Defective Epidermal Protein Metabolism in Psoriasis", second prize to Dr Robert B Pittelkow, Milwaukee, for "Systemic Candidiasis and a Study of the Amino Acid Excretion Patterns by Microbiological Assay", third prize to Dr Richard K Winkelmann, Rochester, Minn, for The Muco-Cutaneous End Organ—The Primary Organized Sensory Ending in Human Skin", and fourth prize to Dr William B Reed, Washington, D C, for "Vascular Reactions in a Chronically Inflamed Skin" Another essay contest will be sponsored this year

Physical Medicine Fellowship —The Department of Physical Medicine and Rehabilitation of the New York University–Bellevue Medical Center, through a grant given it by Miss Belle Baruch, has created a two-year fellowship for postgraduate training in physical medicine and rehabilitation This fellowship, to be known as the Frances Milam Fellowship, is named for Miss Milam, who is a resident of Georgetown, S C, and a severely handicapped victim of poliomyelitis First consideration in awarding this fellowship will be given to physicians who are residents of South Carolina Application forms may be secured from Dr J G Benton, Institute of Physical Medicine and Rehabilitation, New York University–Bellevue Medical Center, 400 E 34th St, New York City

Fellowships Available—The Helen Hay Whitney Foundation, New York City, has announced that fellowships are available to properly qualified persons in the United States or abroad, up to the age of 35, holding the degree of M D, Ph D, or their equivalent, who are seriously considering a career in biological or medical research, preferably relating to connective tissue and its diseases Fellowships are annual, subject to renewal consequent to good performance for a period of three years Stipends will be arranged to meet the needs of the fellow Applications, to be submitted before Sept 15, should be requested from the Executive Secretary, The Helen Hay Whitney Foundation, 525 E 68th St, New York 21 The foundation was established in 1947 to support research of rheumatic fever Its activities have recently expanded to include the study of connective tissue and its diseases

Mental Health Grant—The Western Interstate Commission for Higher Education has received a $171,000 grant from the National Institute of Mental Health to improve and expand mental health training and research in the western states Harold L Enarson, Ph D, director of the commission, said the money would be used (1) to encourage closer working relationships between western medical schools and the state mental hospitals, (2) to help promote interstate mental health research, and (3) to aid in organizing interstate mental health training programs The grant covers a four-year period The sum of $56,000 will be made available June 1 to cover the first year of the new program It will make possible the creation of a western mental health council and the addition of several mental health experts to the commission's staff in Boulder, Colo

Congress on Rheumatic Diseases—The ninth International Congress on Rheumatic Diseases will be held at the Royal York Hotel, Toronto, Ont, Canada, June 23 28 The official languages of the congress will be English, French, German, and Spanish Speakers from Sweden, India, Poland, England, Spain, and other countries are scheduled Anatoli Nesterov, Moscow, will speak on Neurogenic Factors in Pathogenesis and Clinical Features of Rheumatism,' and Frantisek Lenoch, Prague, Czechoslovakia, will present "Does Rheumatic Iritis and Iridocyclitis Exist?' Social program includes the president's ball June 24, and the congress banquet June 27 Scientific and commercial exhibits and tours of medical centers are planned Two post-congress tours have been organized, one going to the Philadelphia area and the other to Detroit, Chicago, and Rochester, Minn Any physicians or medical scientists may become members of the congress Active membership fee is $25 For information write Dr Donald C Graham, Chairman, Ninth International Congress on Rheumatic Diseases, P O Box 237, Terminal "A', Toronto, Ont, Canada

CORRECTION

Artane and Kemadrin—Concerning his article in The Journal, April 13, 1957, page 1352, on the treatment of paralysis agitans, Dr Lewis Doshay writes, "In the first paragraph of the paper Artane and Kemadrin appear in parentheses as trade names of Trihexyphenidyl While this is true of Artane, it is not so with regard to Kemadrin, which is Procyclidine Hydrochloride Kemadrin differs from Artane at the right end of the formula, where there is a pyrrolidine ring with 4 carbons and 1 nitrogen atom instead of the 5 carbons and 1 nitrogen atom ring associated with Artane A correction of the error would be appreciated"

EXAMINATIONS AND LICENSURE

American Board of Anesthesiology *Part I* Various locations, July 19 Final date for filing application was Jan 19 American Board of Anesthesiology *Oral* Washington, Oct 28-Nov 1 Sec, Dr Curtiss B Hickcox, 80 Seymour St, Hartford 15

American Board of Dermatology *Written* Several cities, June 27 *Oral* Baltimore, Oct 11-13 Final date for filing application was April 1 Sec, Dr Beatrice Maher Kesten, One Haven Ave, New York 32

American Board of Internal Medicine *Written* Oct 21 *Oral* Los Angeles, Sept 11-14 Final date for filing applications was Feb 1 Exec Sec, Dr W A Werrell, 1 West Main St, Madison 3, Wis

American Board of Neurological Surgery Examination given twice annually, in the spring and fall In order to be eligible a candidate must have his application filed at least six *months before the examination time Sec, Dr Leonard T Fur*low, Washington University School of Medicine, St Louis 10

American Board of Obstetrics and Gynecology Applications for certification, new and reopened, for the 1958 Part I examinations are now being accepted Deadline for receipt of applications is September 1 Sec, Dr Robert L Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio

American Board of Ophthalmology *Oral* Chicago, Oct 7-11 *Written* January 1958 Final date for filing application is July 1 Sec, Dr Merrill J King, Box 236, Cape Cottage Branch, Portland 9, Maine

American Board of Orthopaedic Surgery *Part II* New York City, Jan 29-31, 1958 Final date for filing application is August 15 Sec, Dr Sam W Banks, 116 South Michigan Avenue, Chicago 3

American Board of Otolaryngology Chicago, Oct 7-11 Final date for filing application was in April Sec, Dr Dean M Lierle, University Hospitals, Iowa City

American Board of Pathology *Oral and Written Pathologic Anatomy and Clinical Pathology* New Orleans, Sept 26-28 Final date for filing application is August 15 Sec, Dr Edward B Smith, Indiana University Medical Center, Indianapolis 7

American Board of Pediatrics *Oral* San Francisco, June 21-23 Sec, Dr John McK Mitchell, 6 Cushman Road, Rosemont, Pa

American Board of Physical Medicine and Rehabilitation *Parts I and II* New York City, June 8-9 Final date for filing application was March 1 Sec, Dr Earl C Elkins, 200 First St, S W, Rochester, Minn

American Board of Proctology *Oral and Written Parts I and II* September Sec, Dr Stuart T Ross, 520 Franklin Ave, Garden City, N Y

American Board of Psychiatry and Neurology New York, Dec 16-17 San Francisco, March 17-18 Sec, Dr David A Boyd, Jr, 102-110 Second Ave, S W, Rochester, Minn

American Board of Radiology Washington, Sept. 23-28 Final date for filing application was June 1 Within the near future a special examination for certification in Nuclear Medicine will be offered to diplomates in Radiology and Therapeutic Radiology Sec, Kahler Hotel Bldg, Rochester, Minn

American Board of Surgery *Part II* New York, June 10-11 Sec, Dr John B Flick, 225 S 15th St., Philadelphia 2

American Board of Urology *Written examination* Various cities throughout the country *Pathology and Oral Clinical* February 1958 Location not decided Exec Secretary, Mrs Ruby L Griggs, 30 Westwood Road, Minneapolis 16

Board of Thoracic Surgery *Written* Various centers throughout the country, September 1957, and the closing date for registration is July 1, 1957 Sec, Dr William H Tuttle, 1151 Taylor Ave, Detroit 2

DEATHS

Cetrulo, Gerald Italo ⊕ Newark, N J , born in Newark Dec 28, 1907, University and Bellevue Hospital Medical College, New York City, 1931, certified by the National Board of Medical Examiners, fellow of the American College of Surgeons, recently appointed assistant dean in charge of postgraduate education in the College of Medicine and Dentistry at Seton Hall University in Jersey City, where he was director of medical education since 1945 and from 1938 to 1942 taught physical education and health anatomy and physiology, veteran of World War II, for many years chairman of the medical education committee of the Essex County Medical Society, assistant medical director, Martland Medical Center, on the staffs of the Clara Maass Memorial and Columbus hospitals, in his youth was a champion fencer and in 1932 served on the United States Olympic team, died at the New York International Airport, Idlewild, in New York City, March 10, aged 49, of arteriosclerotic heart disease

Goldstein, Louis ⊕ Philadelphia born May 23, 1887, Temple University School of Medicine, Philadelphia, 1923, specialist certified by the American Board of Dermatology and Syphilology, member of the American Academy of Dermatology and Syphilology, served as associate professor of dermatology and syphilology at the Hahnemann Medical College, on the staffs of St Joseph's Hospital, Skin and Cancer Hospital, and St Vincent s Hospital for Women and Children, died in the Graduate Hospital of the University of Pennsylvania March 17, aged 69, of cancer of the pancreas

Dickson, Roger William ⊕ Atlanta, Ga , Emory University School of Medicine Atlanta, 1922, specialist certified by the American Board of Pediatrics, served as professor and chairman of the department of pediatrics at his alma mater, fellow of the American Academy of Pediatics, past-president of the Georgia Pediatric Society, an attending pediatrician at Emory University Hospital, Grady Memorial Hospital, Piedmont Hospital, and Crawford W Long Hospital, drowned in the Chattahoochee River Feb 22, aged 60

Borghoff, John Aloysius ⊕ Omaha, University of Nebraska College of Medicine, Omaha 1920, professor of dermatology at Creighton University School of Medicine, specialist certified by the American Board of Dermatology and Syphilology, member of the American Academy of Dermatology and Syphilology, on the staffs of Creighton Memorial St Joseph's Hospital, St Catherine's Hospital, and Douglas County Hospital, died Feb 21, aged 61

Bowes, Frank Arthur, Waterbury, Conn , Harvard Medical School, Boston, 1915, veteran of World War I, affiliated with St Mary s Hospital, served as physician for the Welfare Department, and as police and fire surgeon, died in the Veterans Administration Hospital, West Haven, Feb 24, aged 68, of lobar pneumonia

Copeland, Samuel James ⊕ Indianapolis, Indiana University School of Medicine, Indianapolis, 1909, served on the staffs at Indianapolis General, St Vincent s and Methodist hospitals, died March 2, aged 79, of coronary occlusion

Coseglia, Robert Paul ⊕ Detroit, University of Illinois College of Medicine, Chicago, 1935, member of the American Academy of General Practice, on the staffs of Holy Cross Hospital, where he was staff secretary, Detroit Memorial, East Side General, and St John hospitals, and Saratoga General Hospital, where he died Feb 25, aged 47, of coronary thrombosis

Curtiss, Charles Erwin, Manlius, N Y , Syracuse University College of Medicine, 1903, an associate member of the American Medical Association, veteran of World War I, formerly member of the Manlius High School Board of Education, for many years mayor of Manlius, served on the staff of the Crouse-Irving Hospital in Syracuse, died Feb 16, aged 77

Dowden, Albert Porter, Louisville, Ky , University of Louisville Medical Department, 1900, died Feb 26, aged 80

Ehle, Amos E , Richmond, Ind , Eclectic Medical Institute, Cincinnati, 1896, died in Centerville Feb 23, aged 87, of cerebral thrombosis

Luthy, Karl Robert, Indianapolis, Drake University College of Medicine, Des Moines, 1910, service member of the American Medical Association, served as medical director of the U S Rubber Company plant in Mishawaka, Ind , died Jan 29, aged 68, of coronary occlusion

Lynch, Harry Orange, Kansas City, Mo , Tulane University School of Medicine, New Orleans, 1929, service member of the American Medical Association, veteran of World War II, associated with the regional office, Veterans Administration, died Feb 18, aged 53, of coronary thrombosis

Martin, Orel F , Coral Gables, Fla , Middlesex University School of Medicine, Waltham, Mass , 1918, veteran of World War I, died Jan 7, aged 64, of cirrhosis of the liver

Mears, Burleigh Nichols, Belle Haven, Va , Medical College of Virginia, Richmond, 1914, member of the Medical Society of Virginia, died in the Johnston-Willis Hospital, Richmond, Jan 10, aged 66, of cerebral thrombosis

Morgan, Everett Humphreys, Marion, Ohio, Starling Medical College, Columbus, 1903, veteran of the Spanish American War and World War I, served as county coroner, died at Westerville Feb 11, aged 80

Moseley, William Edward, Mount Savage, Md , Baltimore Medical College, 1906, an associate member of the American Medical Association, died in Cumberland Nov 21, aged 74, of cerebral hemorrhage

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⊕ Indicates Member of the American Medical Association

Myre, Stanley Lawrence Greybull, Wyo, Marquette University School of Medicine, Milwaukee, 1915 veteran of World War I, died in Naples, Fla, Dec 12, aged 65

Proctor, Willis Herbert, Lynbrook, N Y, Hahnemann Medical College and Hospital of Philadelphia, 1880, an associate member of the American Medical Association, died in Long Island Feb 13, aged 102

Pruett, William Veasy, Washington, D C, Mississippi Medical College Meriden, 1911, veteran of World War II, died in the Walter Reed Army Hospital, Jan 11, aged 68, of pulmonary embolus

Rabinovitz, Bernard ⊕ Springfield, Mass, Tufts College Medical School, Boston, 1913, also a registered pharmacist, veteran of World War I, on the staffs of the Springfield Municipal Hospital and the Springfield Hospital, where he died Feb 13, aged 76, of cerebral hemorrhage, and coronary arteriorsclerosis

Ragany, Joseph, Montrose, N Y, Magyar Kiralyi Pázmany Petrus Tudomanyegyetem Orvosi Fakultasa, Budapest, Hungary, 1921, service member of the American Medical Association, member of the American Psychiatric Association, veteran of World War II, on the staff of the Veterans Administration Hospital, died in the New York Hospital Jan 10, aged 64, of pancreatitis

Ranker, Emery Romain ⊕ Oakland, Calif, Northwestern University School of Medicine, Chicago, 1933, died Feb 4, aged 60

Rebok, Harry Edward Keisterville, Pa, Medico-Chirurgical College of Philadelphia, 1902, died in the Uniontown (Pa) Hospital Feb 3, aged 78

Reed, Floyd Orton, Yonkers, N Y, Harvard Medical School, Boston, 1911, an associate member of the American Medical Association, veteran of World War I, for many years health service director and medical examiner for the city public schools, on the staff of the Professional Hospital, died Feb 16, aged 73, of coronary thrombosis with arteriosclerosis

Robinson, Louis Fred, Winnsboro, La, Medical Department of Tulane University of Louisiana, New Orleans, 1906, served as Franklin parish coroner and parish health officer, died Jan 18, aged 74, of congestive heart disease

Robinson, William Witten ⊕ Spokane, Wash, Rush Medical College, Chicago, 1925, veteran of World Wars I and II, served on the staffs of the Deaconess, St Luke's, and Sacred Heart hospitals, died in Honolulu, Hawaii, Feb 5, aged 59, of heart failure

Rodin, Robert, Urbana, Ill, University of Illinois College of Medicine, Chicago, 1931, member of the health service staff, University of Illinois, where he was assistant professor of hygiene, died in the Research and Educational Hospitals, University of Illinois, Chicago, Jan 5, aged 49, of leukemia

Rogers, William Peyton ⊕ El Paso, Texas, Vanderbilt University School of Medicine, Nashville, Tenn, 1899, past-president of the El Paso County Medical Society, veteran of World War I, during World War II was on the Procurement and Assignment Board for the Army and Navy, for many years federal jail physician, on the staffs of Hotel Dieu, Sisters' Hospital, and Providence Hospital, died Jan 20, aged 81

Roosth, Harold ⊕ Tyler, Texas, University of Texas School of Medicine, Galveston, 1940, member of the American Trudeau Society, interned at St Vincent's Hospital in Erie, Pa, served a residency at John Sealy Hospital in Galveston, state director of the Texas Tuberculosis Association in 1951, veteran of World War II, on the staffs of the Medical Center Hospital and the Mother Frances Hospital, where he died Feb 7, aged 41, of intracranial hemorrhage

Rosapepe, Attilio ⊕ Youngstown, Ohio, Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1911, veteran of World War I, formerly Italian consular agent for seven of the eastern Ohio counties, died in St Elizabeth Hospital Jan 28, aged 74, of arteriosclerosis

Rusk, Francis Hubert, Alhambra, Calif, Toledo Medical College, 1905, veteran of the Spanish-American War, died in the Veterans Administration Hospital in West Los Angeles Feb 6, aged 87, of bronchopneumonia and arteriosclerosis

Russell, Daniel Abell ⊕ San Antonio, Texas, Tulane University School of Medicine, New Orleans, 1921, specialist certified by the American Board of Otolaryngology, member of the American Academy of Ophthalmology and Otolaryngology, on the staffs of the Santa Rosa and Nix hospitals, consultant, Brooke General Army Hospital and the Robert B Green Hospital, died in the Santa Rosa Hospital Feb 2, aged 61, of cerebral hemorrhage

Sample, Roy Osborne ⊕ San Antonio, Texas, Vanderbilt University School of Medicine, Nashville, Tenn, 1913, member of the American Academy of General Practice, veteran of World War II, died in the Santa Rosa Hospital Dec 2, aged 66

Sanger, Winnie Monroney, Oklahoma City, Okla, Kansas Medical College, Medical Department of Washburn College, Topeka, 1904, a dormitory at the University of Oklahoma had been named for her, chosen for the Oklahoma Hall of Fame, an associate member of the American Medical Association, died in Norman Feb 7, aged 83, of bilateral bronchopneumonia

Sapienza, Frank, New York City, George Washington University School of Medicine, Washington, D C, 1924, member of the Medical Society of the State of New York, died Feb 17, aged 60, of chronic myocarditis

Schaeffer, Benjamin Leonard, South Chatham, Mass, Columbia University College of Physicians and Surgeons, New York City, 1901, member of the Medical Society of the State of New York, an associate member of the American Medical Association, died in the Cape Cod Hospital, Hyannis, Feb 17, aged 77, of ruptured aortic aneurysm

Schilling, Francis M, Philadelphia, Jefferson Medical College of Philadelphia, 1909, member of the staffs of the Frankford and Jefferson hospitals, died in the Memorial Hospital, West Chester, Pa, Jan 11, aged 81, of heart disease

Schwager, Abraham Mark New York City University and Bellevue Hospital Medical College New York City 1911 an associate member of the American Medical Association specialist certified by the American Board of Ophthalmology member of the American Academy of Ophthalmology and Otolaryngology on the staff of the New York Eye and Ear Infirmary died in the Manhattan General Hospital Jan 25 aged 76 of uremia and cerebral hemorrhage

Scott Clifton Russell ✠ New Haven Conn Yale University School of Medicine New Haven 1919 specialist certified by the American Board of Radiology member of the American Roentgen Ray Society and the American College of Radiology associated with the Griffin Hospital [illegible] Derby and the Grace-New Haven Community Hospital died Feb 7 aged 65 of hypertensive heart disease

Scott, James Edward Jr ✠ McClellanville S C Medical College of the State of South Carolina Charleston 1937 member of the American Academy of General Practice veteran of World War II held the Bronze Star Medal [illegible] and a Presidential Unit citation [illegible] 45 in an automobile accident

Shahman, [illegible] Moses ✠ Philadelphia Medico-Chirurgical College of Philadelphia 1916 associated with the [illegible] where he died Jan 10 aged [illegible] of [illegible] heart disease

Sheehan, [illegible] West New York N J New York Homeopathic Medical College and Flower Hospital New York City [illegible] died in the Berthold S Pollak Hospital for Chest Diseases Jersey City Jan [illegible] aged [illegible] heart disease and pulmonary [illegible]

Sheets, [illegible] ✠ Cozad, Neb John A Creighton Medical College Omaha 1916 chairman of the board [illegible] on the staff of the Cozad [illegible] Jan 31 aged 62, of cancer

Shiringer, [illegible] Eugene Lopez, Wash University of Oregon Medical School Portland 1931 formerly practiced in Portland Ore where he was on the staff of the Portland [illegible] Hospital, died Jan 24 aged 58, of coronary thrombosis

Shipley, [illegible] Harrison, Des Plaines Ill Western Reserve University School of Medicine Cleveland 1915, died March 5, aged 70 of coronary thrombosis

Silverstein, Jacob Maurice ✠ Millburn N J University of Maryland School of Medicine and College of Physicians and Surgeons Baltimore 1925, on the staff of the Irvington N J General Hospital, died in Port-Au-Prince, Haiti March 8 aged 57 of coronary disease.

Silver Gordon E. ✠ Gadsden Ala University of Tennessee Medical Department Nashville 1910 died Jan 16, aged 72.

Simpson Holland Breeding Greensburg Ky University of Louisville (Ky) Medical Department 1907, died Jan 28 aged 75, of cerebral hemorrhage

Sissakian, Avedis H., Verdel, Neb, Northwestern University Medical School, Chicago, 1897, also a druggist, died in the Veterans Administration Hospital Albany Jan 30 aged 91 of lymphatic leukemia

Sloss, Imit Herman ✠ Terre Haute, Ind, Meharry Medical College, Nashville, Tenn, 1911, died in St Anthony Hospital Nov 19, aged 71, of gangrene, and diabetes mellitus

Smith, James Alonzo ✠ Sanford Fla., Chicago College of Medicine and Surgery, 1915, died in New Smyrna Beach Feb 19 aged 69, of cerebral hemorrhage and arteriosclerotic heart disease

Smith, Katherine Margaret Close, Louisville, Ky, College of Physicians and Surgeons, Los Angeles, 1914, at one time practiced in Los Angeles, where she was on the staffs of the St. Vincent s Hospital, Los Angeles County Hospital and the Presbyterian Hospital-Olmsted Memorial died in the Norton Memorial Infirmary Feb 27 aged 68

Smith Matthew Mann Detroit, Jefferson Medical College of Philadelphia 1921 died in the Grace Hospital Dec 25 aged 61, of cerebral thrombosis and arteriosclerosis

Snyder, Malcolm Erwin Senior Assistant Surgeon U S Public Health Service Reserve, Everett, Wash, University of Washington School of Medicine, Seattle, 1954 service member of the American Medical Association interned at the U S Public Health Service Hospital in New Orleans on the staff of the U S Public Health Service Hospital in Seattle, died Feb 9 aged 29, of Hodgkin's disease

Southard Daniel B, Stanford, Ky Hospital College of Medicine Louisville, 1898 served as health officer of Lincoln and Casey counties, died Jan 18, aged 82 of myocarditis

Sparks Proctor, St Petersburg, Fla, University of Louisville School of Medicine, Louisville, Ky, 1917, member of the Kentucky State Medical Association, practiced in Ashland Ky, died Jan 16, aged 66, of acute infarction of myocardium due to arteriosclerotic coronary thrombosis

Sprague, Shirley Erving New York City, University and Bellevue Hospital Medical College, New York City 1899 an associate member of the American Medical Association on the staff of St Clare's Hospital died Feb 1 aged 82 of car[illegible]oma of the lung

Spurrier, Oliver Walter ltimore, University of
Maryland School of Mec nd Colle of Phy-
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Stennis, Hugh Joseph ⊕ Abilene, Texas, University of Pennsylvania School of Medicine, Philadelphia, 1949, director of Abilene-Taylor County Health Department, veteran of World War II, killed in an automobile accident Jan 16, aged 33

Stevenson, Hector Morrison, West Hartford, Conn, Long Island College of Medicine, Brooklyn, 1907, member of the Association of Life Insurance Medical Directors of America, an associate medical director of the Aetna Life Insurance Company, died in the Hartford (Conn) Hospital Feb 5, aged 70, of staphylococcal enteritis

Stewart, James Edward, Akron, Ohio, Ohio State University College of Medicine, Columbus, 1916, died Jan 30, aged 69, of cancer

Stoner, Donald Eugene, New York City, University of California School of Medicine, San Francisco, 1949, resident physician at the Woman's Hospital, died Feb 9, aged 31

Stovall, James Thomas, Jefferson, Ga, Medical College of Georgia, Augusta, 1930, part owner of the Commerce (Ga) Hospital, died in the Emory University Hospital, Atlanta, Jan 19, aged 50, of respiratory failure following operation for tumor of the brain

Sullivan, Elijah Stover, Oklahoma City, Okla, Barnes Medical College, St Louis 1910, an associate member of the American Medical Association, veteran of World War I, died in the Polyclinic Hospital Feb 3, aged 70, of congestive heart failure and hypertensive and arteriosclerotic heart disease

Sweeney, William James, Needham, Mass, Tufts College Medical School, Boston, 1943, veteran of World War II, formerly an officer in the regular Navy, certified by the National Board of Medical Examiners, died Jan 10, aged 37, of multiple sclerosis

Tacey, John Preston, Grosse Pointe Shores, Mich, Michigan College of Medicine and Surgery, Detroit, 1896, died Jan 25, aged 92, of coronary thrombosis and arteriosclerosis

Taylor, James Thomas, Pomeroy, Pa, Jefferson Medical College of Philadelphia, 1890, an associate member of the American Medical Association, died in Honey Brook, Dec 17, aged 90, of uremia

Thomas, Benjamin, Oakland, Calif, Medical Department of the University of California, San Francisco, 1901, an associate member of the American Medical Association, died Jan 25, aged 86, of coronary thrombosis

Thompson, John James, St Petersburg, Fla, University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1907, specialist certified by the American Board of Psychiatry and Neurology, service member of the American Medical Association, formerly associated with Veterans Administration hospitals in Boston, Bedford, Mass, Hines, Ill, and Danville, Ill, retired from the Veterans Administration Oct 31, 1949, died Jan 2, aged 77, of coronary thrombosis

Trostler, Isador Simon ⊕ Chicago, University of Nebraska College of Medicine, Omaha, 1904, specialist certified by the American Board of Radiology, member of the American College of Radiology, fellow of the American College of Physicians, died March 10, aged 87, of hypostatic pneumonia and arteriosclerotic heart disease

Turner, Steve F ⊕ El Paso, Texas, University of Texas School of Medicine, Galveston, 1935, died Feb 4, aged 45

Turnipseed, Maxy Leander, Sallis, Miss, University of Nashville Medical Department, 1900, died Feb 19, aged 87

Twomey, George Watson, Fort Myers, Fla, University of Louisville (Ky) Medical Department, 1903, died in the Lee Memorial Hospital Nov 25, aged 76, of cor pulmonale

Upham, Roscoe Charles, Biddeford, Maine, Baltimore Medical College, 1908, member of the Maine Medical Association, died March 15, aged 72, of a heart attack

Vermilyea, Charles Herbert ⊕ Russell, Pa, Baltimore Medical College, 1897, on the staff of the Warren (Pa) General Hospital, where he died Feb 16, aged 85

Walker, Robert Latshaw III ⊕ Homestead, Pa, Jefferson Medical College of Philadelphia, 1940, veteran of World War II, died in the Western Pennsylvania Hospital, Pittsburgh, Nov 3, aged 48

Wharton, Ralph Eugene ⊕ Mansfield, Ohio, Western Reserve University School of Medicine, Cleveland, 1933, member of the American Academy of General Practice, veteran of World War II, on the staff of the Mansfield General Hospital, died in Houston, Texas, Feb 19, aged 49, of cerebral vascular accident

Williams, Maud Rose M, Washington, D C, Wisconsin College of Physicians and Surgeons, Milwaukee, 1907, veteran of World War I, died in the Central Dispensary and Emergency Hospital, Feb 20, aged 78, of carcinoma of the breast

Woodworth, Marshall Melvin ⊕ Albany, Ore, University of Oregon Medical School, Portland, 1923, veteran of World War I, president of the board of directors of the Albany General Hospital, past-president of the Albany Rotary Club, died Feb 21, aged 63, of an accidental gunshot wound while cleaning his gun

Yarrington, Charles Webb ⊕ Gary, Ind, University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902, fellow of the American College of Surgeons, past-president of the Lake County Medical Society, on the staffs of the Mercy and Methodist hospitals, past-president of the Gary Rotary Club, died in Clearwater, Fla, March 25, aged 80, of a heart attack

Young, John Hichnor, Montclair, N J, New York Homeopathic Medical College and Hospital, New York City, 1906, served on the staffs of the East Orange (N J) General Hospital, Mountainside and Montclair Community hospitals, died in Southern Pines, N C, Feb 24, aged 77

Zupnik, Howard Lester ⊕ Baltimore, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1932, veteran of World War II, consultant, Mercy Hospital, died Feb 15, aged 51

Schwager, Abraham Mark, New York City, University and Bellevue Hospital Medical College, New York City, 1911, an associate member of the American Medical Association, specialist certified by the American Board of Ophthalmology, member of the American Academy of Ophthalmology and Otolaryngology, on the staff of the New York Eye and Ear Infirmary, died in the Manhattan General Hospital Jan. 25, aged 76, of uremia and cerebral hemorrhage

Scott, Clifton Russell ⊕ New Haven, Conn., Yale University School of Medicine, New Haven, 1919, specialist certified by the American Board of Radiology, member of the American Roentgen Ray Society and the American College of Radiology, associated with the Griffin Hospital in Derby and the Grace-New Haven Community Hospital, died Feb. 7, aged 65, of hypertensive heart disease

Scott, James Edward, Jr. ⊕ McClellanville, S. C., Medical College of South Carolina, Charleston, 1937, member of the American Academy of General Practice, veteran of World War II, held the Bronze Star Medal, a Purple Heart Medal, and a Presidential Unit citation, died Feb. 7, aged 43, in an automobile accident

Shahinian, Shahin Movses ⊕ Philadelphia, Medico-Chirurgical College of Philadelphia, 1916, associated with the Lankenau Hospital, where he died Jan. 10, aged 75, of arteriosclerotic heart disease

Sheehan, Edward Grady, West New York, N. J., New York Homeopathic Medical College and Flower Hospital, New York City, 1919, died in the Berthold S. Pollak Hospital for Chest Diseases, Jersey City, Jan. 26, aged 63, of arteriosclerotic heart disease and pulmonary tuberculosis

Sheets, Charles Henry ⊕ Cozad, Neb., John A. Creighton Medical College, Omaha, 1916, chairman of the board, First National Bank, on the staff of the Cozad Community Hospital, died Jan. 31, aged 62, of cancer

Shininger, Paul Eugene, Lopez, Wash., University of Oregon Medical School, Portland, 1931, formerly practiced in Portland, Ore., where he was on the staff of the Portland Sanitarium and Hospital, died Jan. 24, aged 53, of coronary thrombosis

Shipley, Manly Harrison, Des Plaines, Ill., Western Reserve University School of Medicine, Cleveland, 1915, died March 5, aged 70, of coronary thrombosis

Silverstein, Jacob Maurice ⊕ Millburn, N. J., University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1925, on the staff of the Irvington (N. J.) General Hospital, died in Port-Au-Prince, Haiti, March 3, aged 57, of coronary disease

Silvey, Gordon E. ⊕ Gadsden, Ala., University of Tennessee Medical Department, Nashville, 1910, died Jan. 16, aged 72

Simpson, Holland Breeding, Greensburg, Ky., University of Louisville (Ky.) Medical Department, 1907, died Jan. 28, aged 75, of cerebral hemorrhage

Sissakian, Avedis H., Verdel, Neb., Northwestern University Medical School, Chicago, 1897, also a druggist, died in the Veterans Administration Hospital, Albany, Jan. 30, aged 91, of lymphatic leukemia

Sloss, Imit Herman ⊕ Terre Haute, Ind., Meharry Medical College, Nashville, Tenn., 1911, died in St. Anthony Hospital Nov. 19, aged 71, of gangrene, and diabetes mellitus

Smith, James Alonzo ⊕ Sanford, Fla., Chicago College of Medicine and Surgery, 1915, died in New Smyrna Beach Feb. 19, aged 69, of cerebral hemorrhage and arteriosclerotic heart disease

Smith, Katherine Margaret Close, Louisville, Ky., College of Physicians and Surgeons, Los Angeles, 1914, at one time practiced in Los Angeles, where she was on the staffs of the St. Vincent's Hospital, Los Angeles County Hospital and the Presbyterian Hospital–Olmsted Memorial, died in the Norton Memorial Infirmary Feb. 27, aged 68

Smith, Matthew Mann, Detroit, Jefferson Medical College of Philadelphia, 1921, died in the Grace Hospital Dec. 25, aged 61, of cerebral thrombosis and arteriosclerosis

Snyder, Malcolm Erwin, Senior Assistant Surgeon, U. S. Public Health Service Reserve, Everett, Wash., University of Washington School of Medicine, Seattle, 1954, service member of the American Medical Association, interned at the U. S. Public Health Service Hospital in New Orleans, on the staff of the U. S. Public Health Service Hospital in Seattle, died Feb. 9, aged 29, of Hodgkin's disease

Southard, Daniel B., Stanford, Ky., Hospital College of Medicine, Louisville, 1898, served as health officer of Lincoln and Casey counties, died Jan. 18, aged 82, of myocarditis

Sparks, Proctor, St. Petersburg, Fla., University of Louisville School of Medicine, Louisville, Ky., 1917, member of the Kentucky State Medical Association, practiced in Ashland, Ky., died Jan. 16, aged 66, of acute infarction of myocardium due to arteriosclerotic coronary thrombosis

Sprague, Shirley Erving, New York City, University and Bellevue Hospital Medical College, New York City, 1899, an associate member of the American Medical Association, on the staff of St. Clare's Hospital, died Feb. 1, aged 82, of carcinoma of the lung

Spurrier, Oliver Walter ⊕ Baltimore, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1929, veteran of World War II, on the staffs of the Mercy, St. Agnes, Bon Secours, Maryland General, Lutheran, and University hospitals, died Feb. 15, aged 52, of coronary thrombosis

Srb, Joseph J., Dwight, Neb., John A. Creighton Medical College, Omaha, 1915, veteran of World War I, served as president of the board of education, died Jan. 11, aged 70, of cardiac failure

Stein, Ernst, Albany, N. Y., Medizinische Fakultat der Universitat, Vienna, Austria, 1906, died Jan. 20, aged 75

Stennis, Hugh Joseph ⊕ Abilene, Texas, University of Pennsylvania School of Medicine, Philadelphia, 1949, director of Abilene-Taylor County Health Department, veteran of World War II, killed in an automobile accident Jan 16, aged 33

Stevenson, Hector Morrison, West Hartford, Conn , Long Island College of Medicine, Brooklyn, 1907, member of the Association of Life Insurance Medical Directors of America an associate medical director of the Aetna Life Insurance Company, died in the Hartford (Conn) Hospital Feb 5, aged 70, of staphylococcal enteritis

Stewart, James Edward, Akron, Ohio, Ohio State University College of Medicine, Columbus, 1916, died Jan 30, aged 69, of cancer

Stoner, Donald Eugene, New York City, University of California School of Medicine, San Francisco, 1949, resident physician at the Woman's Hospital, died Feb 9, aged 31

Stovall, James Thomas, Jefferson, Ga , Medical College of Georgia, Augusta, 1930, part owner of the Commerce (Ga) Hospital, died in the Emory University Hospital, Atlanta, Jan 19, aged 50, of respiratory failure following operation for tumor of the brain

Sullivan, Elijah Stover, Oklahoma City, Okla , Barnes Medical College, St Louis 1910, an associate member of the American Medical Association, veteran of World War I, died in the Polyclinic Hospital Feb 3, aged 70, of congestive heart failure and hypertensive and arteriosclerotic heart disease

Sweeney, William James, Needham, Mass , Tufts College Medical School, Boston, 1943, veteran of World War II, formerly an officer in the regular Navy, certified by the National Board of Medical Examiners, died Jan 10, aged 37, of multiple sclerosis

Tacey, John Preston, Grosse Pointe Shores, Mich , Michigan College of Medicine and Surgery, Detroit, 1896, died Jan 25, aged 92, of coronary thrombosis and arteriosclerosis

Taylor, James Thomas, Pomeroy, Pa , Jefferson Medical College of Philadelphia, 1890, an associate member of the American Medical Association, died in Honey Brook, Dec 17, aged 90, of uremia

Thomas, Benjamin, Oakland, Calif , Medical Department of the University of California, San Francisco, 1901, an associate member of the American Medical Association, died Jan 25, aged 86, of coronary thrombosis

Thompson, John James, St Petersburg, Fla , University of Toronto Faculty of Medicine, Toronto, Ontario, Canada, 1907, specialist certified by the American Board of Psychiatry and Neurology, service member of the American Medical Association, formerly associated with Veterans Administration hospitals in Boston, Bedford, Mass , Hines, Ill , and Danville, Ill , retired from the Veterans Administration Oct 31, 1949, died Jan 2, aged 77, of coronary thrombosis

Trostler, Isador Simon ⊕ Chicago, University of Nebraska College of Medicine, Omaha, 1904, specialist certified by the American Board of Radiology, member of the American College of Radiology, fellow of the American College of Physicians, died March 10, aged 87, of hypostatic pneumonia and arteriosclerotic heart disease

Turner, Steve F ⊕ El Paso, Texas, University of Texas School of Medicine, Galveston, 1935, died Feb 4, aged 45

Turnipseed, Maxy Leander, Sallis, Miss , University of Nashville Medical Department, 1900, died Feb 19, aged 87

Twomey, George Watson, Fort Myers, Fla , University of Louisville (Ky) Medical Department, 1903, died in the Lee Memorial Hospital Nov 25, aged 76, of cor pulmonale

Upham, Roscoe Charles, Biddeford, Maine, Baltimore Medical College, 1908, member of the Maine Medical Association, died March 15, aged 72, of a heart attack

Vermilyea, Charles Herbert ⊕ Russell, Pa , Baltimore Medical College, 1897, on the staff of the Warren (Pa) General Hospital, where he died Feb 16, aged 85

Walker, Robert Latshaw III ⊕ Homestead, Pa , Jefferson Medical College of Philadelphia, 1940, veteran of World War II, died in the Western Pennsylvania Hospital, Pittsburgh, Nov 3, aged 48

Wharton, Ralph Eugene ⊕ Mansfield, Ohio, Western Reserve University School of Medicine, Cleveland, 1933, member of the American Academy of General Practice, veteran of World War II, on the staff of the Mansfield General Hospital, died in Houston, Texas, Feb 19, aged 49, of cerebral vascular accident

Williams, Maud Rose M , Washington, D C , Wisconsin College of Physicians and Surgeons, Milwaukee, 1907, veteran of World War I, died in the Central Dispensary and Emergency Hospital, Feb 20, aged 78, of carcinoma of the breast

Woodworth, Marshall Melvin ⊕ Albany, Ore , University of Oregon Medical School, Portland, 1923, veteran of World War I, president of the board of directors of the Albany General Hospital, past-president of the Albany Rotary Club, died Feb 21, aged 63, of an accidental gunshot wound while cleaning his gun

Yarrington, Charles Webb ⊕ Gary, Ind , University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902, fellow of the American College of Surgeons, past-president of the Lake County Medical Society, on the staffs of the Mercy and Methodist hospitals, past-president of the Gary Rotary Club, died in Clearwater, Fla , March 25, aged 80, of a heart attack

Young, John Hichnor, Montclair, N J , New York Homeopathic Medical College and Hospital, New York City, 1906, served on the staffs of the East Orange (N J) General Hospital, Mountainside and Montclair Community hospitals, died in Southern Pines, N C , Feb 24, aged 77

Zupnik, Howard Lester ⊕ Baltimore, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1932, veteran of World War II, consultant, Mercy Hospital, died Feb 15, aged 51

FOREIGN LETTERS

AUSTRIA

Rare Injuries of Muscles, Tendons, and Periosteum — At the meeting of the Vienna Medical Society on March 1, H Schonbauer stated that functional impairment of muscles and tendons is usually caused by the passive stretching of a muscle with maximal tension Persons who are not physically trained or who are insufficiently warmed up in bad weather and aged athletes with degenerative manifestations in the tendons are likely to incur such injuries Damage to the sternocleidomastoideus muscle in wrestlers and erector spinae in hurdlers, divers, and pole vaulters need no specific treatment Major ruptures of the abdominal wall, caused by pushing and throwing during gymnastics and boxing, must be sutured Ruptures of the pectoral muscles and of the long biceps tendon, caused by throwing, wrestling, and weight-lifting and tearings off from the insertion of the triceps in fencers and throwers, occur These ruptures must be sutured Rupture of the extensor tendon in fingers occurs during ball playing and ruptures of the bending tendon during tug-of-war A tearing off from the anterior superior iliac spine is a common occurrence in juvenile runners Ruptures of the adductor and gastrocnemius muscles are therapeutically unimportant, those of the quadriceps tendon, common in football players and ice skaters, must be sutured, and those of the tendo achillis, common in football and tennis players, are becoming increasingly frequent in skiers

Ocular Injuries in Athletes —At the same meeting, K Safai said that, because myopic athletes are particularly susceptible to ocular injuries, this condition should be especially looked for in the medical examination of athletes About 5% of detachments of the retina are due to athletic exercises Persons with a tendency to retinal detachment may be allowed to swim but not to dive Before a rational operation for retinal detachment had been devised, a well-known diver became blind in one eye because of retinal detachment She did not give up diving, despite warnings, and became blind also in the other eye

Electrocardiographic Changes Associated with Cardiac Hypertrophy —At the same meeting, L Slapak stated that changes in the electrocardiogram may occur in well-trained athletes The differential diagnosis between these changes and those of pathological origin may be difficult The most important of these changes are a prolongation of the PQ interval of more than 0 2 second and a prolongation of the relative QT interval These changes are observed with the patient at rest When an extra load is placed on the heart, the tracings become normal and even subnormal measurements may be found A sure diagnosis of a cardiac lesion can be made only after placing a heavy extra load on the heart The loading test must be carefully performed A decrease in the ST interval of 0 1 to 0 15 mv is observed in young persons after exertion, but this is not considered abnormal if the interval returns to normal after a short time Changes in the T waves in athletes may consist of a primary decrease noted immediately after a slight extra load which lasts only for a few minutes and does not recur with a moderate or heavy extra load The one-minute peak after a one-minute overload and a so-called secondary decrease can be observed three to five minutes after an extra load This parallels the degree of cardiac fatigue It may be observed after a moderate or heavy overload placed on the heart of untrained persons and indicates that the limit of tolerance has been reached Its occurrence can be delayed by training Higher amplitudes with chest wall leads and a physiological incomplete right bundle-branch block may be observed in well-trained athletes This is not an abnormal sign Likewise, severe bradycardia, temporary Tawara's rhythm, or transitory atrioventricular dissociation may occur on a purely physiological basis in athletes

Cytological Diagnosis —At the meeting of the Austrian Gynecologic and Obstetric Society in March, H Kremer said that the reliability of Papanicolaou's cytological test depends on the care used in taking the smear and on the medical experience of the examiner The accuracy of early diagnosis of cervical cancer and of uterine cancer in situ was proved in 88 2% of the 10,688 patients who were examined by this method between September, 1954, and June, 1956 The two years were subdivided into three periods, with the same number of patients in each period The per cent of an accurate early diagnosis (84 8%, 86 6%, and 93 7%) showed a steady increase According to the results, cytology proved to be valuable for detecting cervical carcinoma The use of cytology by the practitioner is recommended since only a precise technique in securing the smear is required The smear itself must be examined by an experienced cytologist

Vitamin B_6 Levels in Patients with Carcinoma —At the meeting of the Austrian Society for Gynecology and Obstetrics in February, O Seeliger stated that the vitamin B_6 levels in the blood and tissue of normal mice and of those with carcinoma are significantly different Similar studies in man have not been reported Vitamin B_6 determinations in man had previously been made only in the feces and urine It was possible to determine the vitamin B_6 level in the blood of healthy women and of those with carcinoma only after a slight modification of the method of microbiological determination of Atkins and co-workers They used Saccharomyces carlsbergensis 4228 as a bioassay organism for vitamin B_6 determination in the blood of monkeys The determinations of the vitamin B_6 level in the fasting blood of healthy women and of those with carcinoma of the sex organs did not show significant differences A second group of patients was

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The items in these letters are contributed by regular correspondents in the various foreign countries

given 50 mg of vitamin B_6 intravenously, and the changes of the vitamin B_6 level in the serum were determined after 5, 15, and 30 minutes and 1, 2, and 24 hours The highest values of vitamin B_6 were obtained after 5 and 15 minutes, respectively, whereas the main portion of the injected vitamin B_6 had disappeared almost entirely after two hours After 5 to 15 minutes, the vitamin B_6 levels in the diseased women were significantly lower than those in the healthy women

Properdin Titer—At the meeting of the Austrian Society for Microbiology and Hygiene in Vienna in March, Dr W Auerswald, of the Vienna University, reported on the effects of polypeptides of low molecular weight on the properdin titer of rabbits His preparation, which had been proved nonantigenic and phagocytosis-stimulating previously, induced, after intramuscular administration in doses of 2 mg, an increase of the properdin titer from 8 units per milliliter of serum up to 64 units per milliliter After 48 to 72 hours, the properdin level returned to the initial reading It is assumed that, contrary to lipopolysaccharides which are antigenic, this polypeptide preparation might be useful for stimulating the properdin system without antigenic side-effects

BRAZIL

Stellate Ganglion Block in Vascular Diseases of the Brain—Dr A Figueiredo reported to the Associação Paulista de Medicina on 340 patients with nonhemorrhagic symptoms of acute vascular accidents of the brain in whom he had performed a stellate ganglion block Of these patients, 256 had symptoms of cerebral thrombosis without complications, 30 had a history of cerebral thrombosis complicated by cardiac decompensation or by diabetes, and 54 showed signs of cerebral embolism In all cases a 1% solution of procaine was injected through the anterior route The minimum time elapsed between the onset of the vascular accident and the first block was two and one-half hours and the maximum time was three days The block was repeated in each patient at least 10 times On the first day it was repeated every four hours and after that twice daily The results obtained after the 1st and the 10th blocks were evaluated in relation to the motor recuperation and the mental behavior of the patient The results were better in patients in whom the infiltration was done during the first hours after the onset of the symptoms Of the 40 patients treated in the first 8 hours, 72 5% after 1 block and 85% after 10 blocks were benefited, of the 57 treated after 9 to 16 hours, 70 1% after 1 block and 77 1% after 10 blocks were benefited, of the 55 treated after 17 to 24 hours, 38 1% after 1 block and 54 5% after 10 blocks were benefited, and of the 188 treated after 25 hours, only 22 7% after 1 block and 29% after 10 blocks were benefited Thus 162 patients, or 48%, showed some improvement after 10 blocks The best results were obtained in patients with thrombosis without complication (improvement in 121 of 256 cases, or 47 3%) and in those with cerebral embolism (improvement in 41 of 54, or 75 9%)

The patients with thrombosis complicated by diabetes and those with cardiac insufficiency did not respond to the treatment Thus, of 30 such patients, in 2 there was only slight improvement and in 21 the symptoms were unchanged, 7 died during the treatment In 42 patients, an electroencephalogram was obtained, and in all of them before the first block it revealed slow waves of low potential in the damaged hemisphere In 14 patients an electroencephalogram was again obtained three to five hours after the block, and in 12 of these the slow waves had disappeared In the remaining 28 the electroencephalogram was repeated after the 10th block In only 2 patients was there an increase in the blood flow, but clinical improvement was observed in 10 Stellate ganglion block gives good results in patients with acute vascular accidents of the brain without hemorrhage or the complication of diabetes or cardiac insufficiency

Penicillin in Dementia Paralytica—Dr A B Fortes (*O Hospital* 50 645, 1957) states that he treated three groups of 30 patients with dementia paralytica The patients of the first group were given malariotherapy followed by penicillin and showed an improvement rate of 50% Those of the second group were given 1 million units of procaine penicillin G daily for 10 days and showed the same rate of improvement Those of the third group were given 2 4 million units of benzathine penicillin G on the first, fifth, and ninth days plus 500,000 units of potassium penicillin G, every 12 hours, or a total of 17 2 million units in 10 days This schedule gave an improvement rate of 83 3% and significant improvement in the serologic and spinal fluid findings The patients treated with penicillin shortly after the diagnosis was established showed appreciable improvement, becoming quieter, less delirious and less agitated Their body weight also increased The author believes that treatment with penicillin is superior to malariotherapy and that the relative efficacy of the different forms of penicillin should be evaluated

Restaurant Sanitation—In 1947, Dr D A Christovão examined the sanitary conditions of 1,568 eating and drinking utensils of restaurants in the central area of the city of São Paulo Only 14% of the coffee cups and one lot of glasses from restaurants were considered satisfactory (maximum of 100 bacteria per utensil) The large number of bacteria present on all types of utensils and the large percentage of lots in which pathogenic organisms were found, as well as the number of lots from which Escherichia coli were isolated, revealed the existence of a great sanitation problem In a new survey (*Revista paulista med* 49 385, 1956), the author has found practically the same situation This is especially deplorable in view of the fact that many other activities of the São Paulo State Health Department have shown great progress in the last decade

FINLAND

Operation for Sciatica—Dr E V S Koskinen (*Annales chirurgiae et gynaecologiae Fenniae*, supp 3, vol 46, 1957) made a follow-up examination of 104 patients with sciatica in whom herniation of the nucleus pulposus was treated surgically Not counting earlier attacks of sciatic and back pain, all patients had had on admission continuous pain in the leg of at least one year's duration (average 26 months) All the patients showed distinct lesions of the nucleus pulposus The occupation of 67 involved hard work, that of 20 semihard manual work, and that of 17 light work The postoperative follow-up period was one to five years It was found that the pain syndrome with simultaneous onset in the back and leg occurred most commonly as a consequence of trauma In this series, 41% were completely cured, 45% were sufficiently improved to resume work, and 14% continued to suffer from sciatica Leg pain disappeared entirely in 60% of the patients, and in 26% slight and intermittent pains occurred Back pain was completely relieved in 46%, slight intermittent back pain remained in 36%, and *continuous back pain persisted in 18%* Restricted flexibility of the back, a constant symptom prior to admission, persisted in 19% of the patients The percentage with scoliosis had dropped from 78 to 5 In patients with areflexia the return of the reflexes was slow

Otological Rehabilitation —A research section for rehabilitation of the disabled has been organized in connection with the Institute for Occupational Health on the initiative of the Ministry for Social Affairs A total of 1,472 disabled persons were examined there in a little over three years, of those, 219 (15%) required an otological examination They were classified by J S Lumio according to their disability (*Duodecim*, no 1, 1957) in the following manner 1 Persons whose principal disability was hearing loss Forty-seven persons, or 3 2% of all disabled persons, were in this group Of these, 26 were completely deaf and 21 severely hard of hearing 2 Persons whose principal disability was something other than hearing loss but whose hearing loss was definitely disabling This group consisted of people who were severely hard of hearing or unilaterally deaf 3 Persons whose principal disability was something other than hearing loss but whose hearing was depressed, though not to the degree of causing disability There were 93 persons in this group 4 Disabled persons whose hearing was found to be normal on examination or became normal after treatment There were 49 in this group

Further analysis revealed that of the total series 11 5% had hearing loss and *5 2% (66)* were *deaf or* severely hard of hearing Of those suffering from chronic otitis media, 17 required medical attention, and 2 of those were advised to undergo a radical mastoid operation Of those who were deaf and severely hard of hearing, 3 spoke intelligibly, 27 indistinctly, though the meaning could be understood, and 9 so indistinctly that no meaning could be made out Fourteen persons were excellent lip readers and 9 knew little or no lip reading, 27 disabled persons used a hearing aid, and 20 others were fitted with hearing aids Speech training was recommended to 3 persons, and occupational training was required by 120

Pulmonary Vascular Changes Associated with Patent Ductus Arteriosus —Landtman and Hjelt (*Annales Paediatriae Fenniae*, vol 3 part 1) reported on a series of 23 children with patent ductus arteriosus Lung biopsy specimens were taken at the operation before ligation of the ductus Similar specimens obtained at autopsy from 100 children who had died of causes unrelated to the heart or lungs served as controls All the patients with patent ductus arteriosus revealed histological changes suggestive of pulmonary arteriosclerosis These changes, which were confined to the small arteries and arterioles, consisted mainly of medial hypertrophy, intimal proliferation, and thickening of the tunica adventitia The lesions usually caused narrowing of the arterial lumen Alveolar fibrosis was occasionally seen Similar pulmonary vascular changes were not encountered in the control group There was no correlation between the degree of the histological changes and the clinical data on the patients These observations support the opinion that all patients with patent ductus arteriosus should be *operated on regardless of the severity of the symptoms* and clinical signs

ITALY

Neuroradiologic Congress —The Italian Neuroradiologic Congress was held in Modena in March Dr Decker, of the Neurologic Clinic of the University of Munich, Germany, demonstrated a new pneumoencephalographic technique The modification consisted in the fact that the air, introduced by spinal puncture, is followed fluoroscopically in its passage through the subarachnoid spaces and the ventricular cavities of the brain An amplifying electronic device is used to enhance the brightness of the screen, which is looked at through a binocular system Spot films are taken when desired A cineroentgenographic film of the screen may be made, with 50 frames a second being used The fluoroscopic control of pneumoencephalography has proved advantageous in that there is greater certainty of filling the ventricular system, it is not necessary to develop the films to ascertain the location of the air, films may be taken when the air lies in the desired spot, and the examination may be interrupted if a cerebellar pressure cone should develop

Dr Di Chiro, of Naples, presented a case thought to be the first one to be reported of retinocerebellar angiomatosis combined with deep cervical angiomas A 26-year-old man, blind since the age of 16, was hospitalized with signs of increased intracranial pressure, ataxia, and severe radicular pain in the left upper extremity Typical retinal angiomatosis was found A roentgenogram of the skull showed calcification of the walls of both eyeballs Left vertebral angiography revealed at least two angiomatous formations in the posterior fossa and two angiomatous sacs embedded deeply in the cervical region at the level of the third vertebral body Carotid angiography failed to reveal any supratentorial vascular anomalies The intense radicular pain in the left upper extremity was believed to be caused by the cervical angiomas pressing on the nerves of the brachial plexus

Drs Di Chiro and Catapano presented the results of a pneumoencephalographic study of 18 patients with dementia paralytica Dilatation of the ventricular system and/or of the subarachnoid spaces, the former a sign of central atrophy, the latter a sign of cortical atrophy, was found in all patients Dilatation was always bilateral, this is considered an important feature of the pneumoencephalogram in patients with dementia paralytica The pneumoencephalogram in these patients is fairly characteristic In one patient suspected of having an intracranial neoplasm, the pneumoencephalogram was characteristic of dementia paralytica, and this diagnosis was eventually confirmed The pneumoencephalogram is of great diagnostic value in borderline cases of dementia paralytica Furthermore, concomitant lesions, as in one of the authors' patients with a subdural hematoma, may be discovered by means of a pneumoencephalogram Dilatation of the ventricular system was more frequently found in older patients, whereas a high degree of widening of the subarachnoid spaces has been proved to be related to advanced mental deterioration, regardless of the patient's age The relation between age and dilatation of the ventricular system and between mental deterioration and widening of the subarachnoid spaces, proved by the authors in patients with dementia paralytica, is believed to be a general rule The pneumoencephalogram in aged patients who have retained their mental functions shows only enlarged ventricles in most cases The hydrocephalic child with enormous ventricular dilatation is often surprisingly active On the contrary, the subarachnoid spaces are found to be markedly widened in patients with senile and presenile dementia and in those with dementia paralytica

PERU

Cerebral Metastasis from Lung Cancer —Lung cancer is the malignant tumor that gives rise to the largest incidence of cerebral metastasis Ten cases of bronchogenic carcinoma with cerebral metastasis are reported by Jeri and Landa (*Revista de neuropsiquiatria,* vol 19, no 2, 1956) Four of the patients complained of respiratory and six complained of neurological symptoms Their ages ranged from 36 to 64 years, nine were men and one was a woman Six were heavy smokers The respiratory symptoms were cough, with or without sputum and thoracic pain The six patients complaining of neurological disturbances had little, if any, respiratory distress On radiologic examination signs of intracranial expanding lesions and of lung tumor were detected in all of the patients In seven patients cytological study of bronchial secretion followed by bronchoscopy was made In four of these the former procedure and in five the latter confirmed the diagnosis The neurological changes induced by the cerebral metastasis were headache in eight patients, convulsions in six, motor changes in eight, papilledema in six, and various degrees of cerebral amnesia in seven The changes were noted from 10 days to 6 months before consultation and in most patients had developed rapidly Laboratory studies were of little help in the diagnosis of the cerebral lesions The electroencephalogram was normal in three of five patients thus studied Nine patients died, most of them within 90 days after confirmation of the diagnosis Craniotomy was attempted in five, but four died shortly after the operation Six were treated by roentgenotherapy, only one of these was still alive at the time of writing The authors stress the importance of early diagnosis and complete removal of the primary lesion before metastasis occurs

Shock Therapy and Adrenal Function —In an attempt to clear up the status of the adrenal function of psychiatric patients, specially in those undergoing shock therapy, investigations on the uropepsin excretion, as an indirect index of adrenal function, were reported by M Vargas in the same issue Hourly determination of this enzyme was made in 46 patients suffering from diverse neuropsychiatric conditions other than schizophrenia and in 45 schizophrenic patients All the patients were men In those with schizophrenia and chronic alcoholism the average levels of uropepsin were found to be somewhat lower than normal In those with manic-depressive psychosis the uropepsin excretion proved to be higher during the manic and lower during the depressive phase In most patients electroshock stimulated the adrenal cortex, and the uropepsin excretion more than doubled The hypoglycemia induced by insulin also acted as a powerful stressor agent, since in almost all of the patients in a coma the uropepsin excretion rate rose to 132% over the basal figure The uropepsin excretion reached the highest levels in the first four hours after insulin injection and then began to drop slowly Late in the course of the treatment, after several applications of shock therapy, the stimulating effect on the uropepsin excretion shows marked diminution Combined treatment with electroshock and insulin increases the uropepsin excretion, even in those patients in whom only one type of therapy no longer results in cortical stimulation The author concludes that (1) the adrenals of the schizophrenic do not react in the same way as those of the normal subject, (2) hypofunction of the whole gland cannot yet be inferred, (3) it is more likely that some functions are diminished, some increased, and some unchanged, and (4) the basic physiological modifications of the adrenals in schizophrenia may be represented by qualitative disturbances in the steroidogenesis, though quantitative changes cannot be ruled out

Mammary Cancer —Dr Bedoya Hevia M advocates the performance of radical mastectomy followed by roentgenotherapy in the treatment of mammary cancer (*Ginecologia y Obstetrica,* vol 4, no 2, 1956) He believes that the more extensive operation requires further trial and long-term evaluation before being adopted in the routine management of this disease In suitable cases needle biopsy is routinely made on the day before operation Its performance does not prejudice the prognosis and may make the treatment safer If positive, radical mastectomy is carried out on the following day If negative, a frozen biopsy specimen is obtained with the patient under anesthesia, and a radical mastectomy is performed if the histological examination reveals cancer Blood transfusions are mandatory during the operation In a series of 54 patients, radical mastectomy was followed by roentgenotherapy in 50 and in the remaining 4 simple mastectomy and roentgenotherapy were used. Of the 50 patients, 21 survived for five years or more, axillary metastases being present, however, at the time of report in 13 of them. The extended operation in which the supraclavicular lymph nodes are removed is not advised by the author, because the presence of metastases in these nodes constitutes a contraindication for radical mastectomy. As to mastectomy with resection of the internal mammary chain of lymph nodes, the author believes that further experience is needed in order to determine its real value and precise indications. In the elderly patient who is a poor surgical risk, as well as in the patient with an ulcerated tumor, the author recommends simple mastectomy as a palliative measure. When isolated recurrences take place, they are surgically removed and roentgenotherapy is applied. The author has performed an oophorectomy in some of these patients with encouraging results.

Cancer of the Uterine Cervix.—At a meeting of the Peruvian Society of Obstetrics and Gynecology in October, Dr. Estevez L., of the National Institute of Neoplastic Diseases, said that pelvic exenteration in selected cases of cancer of the uterine cervix goes beyond being a palliative measure and is definitely curative. Of his series of 14 pelvic exenterations, 13 were total and 1 was of the anterior type. The operative mortality was 30.7%. Eighteen months after the operation, nine patients, including the one operative death, had died. Drs. Majluf T. and Napoleon Mattos R., of the same institute, reported on a series of 1,224 patients treated by irradiation. Of those, 19.2% could not be followed. Of the remainder, 49.5% died within four years, 43.5% survived over five years, 41.0% over six years, and 34.2% over eight years.

Obstetric Anesthesia.—At the same meeting, Dr. Lozano Pardo reported on 120 patients who underwent anesthesia and analgesia during labor. He tried three different mixtures: (1) chlorpromazine hydrochloride, meperidine hydrochloride, and promethazine hydrochloride, (2) chlorpromazine, meperidine, and scopolamine, and (3) chlorpromazine, pyrazolonic derivatives, and promethazine. The best analgesic effect was elicited by the second mixture, but the first proved to have the best sedative action. The results obtained with the third mixture were poor.

Eclampsia.—At the same meeting, Dr. Bazul M. and co-workers, of the Faculty of Medicine, described two patients with eclampsia in whom an abnormal increase of the blood levels of estrogens as well as a decrease of the serum calcium levels were detected. He suggested the possibility that the hypocalcemia and the attendant syndrome of tetany in pregnancy are likely to be caused by a parathyroid dysfunction, the excess of estrogens of placental origin tending to diminish further the serum calcium levels. Drs. Villamón F. and Valiente Preciado H. advocated the "lytic cocktail" given intravenously in isotonic dextrose solution in the treatment of eclampsia. Dramatic clinical response often occurs 24 to 48 hours after this therapy is started.

UNITED KINGDOM

Brucellosis in Children.—Although brucellosis is a relatively rare condition in Great Britain, Wallis, scrutinizing the records of 2,000 hospitalized children seen personally, found 10 cases, most of which presented diagnostic puzzles and in three of which diagnosis was made in retrospect (*Brit. M. J.* 1:621, 1957). All the patients, most of whom came from rural districts, had drunk unpasteurized milk, although in some cases it was from tuberculin-tested herds. Some of the patients were town dwellers who became infected during a summer vacation in the country. The chief manifestations of the disease were pyrexia, enlargement of the liver, lymph nodes, and spleen, arthritis, epistaxis, chronic abdominal pain, headache, constipation, and albumin or pus cells in the urine. An erroneous diagnosis of psychoneurosis was sometimes made. Wallis points out that agglutination and skin tests may be negative while the disease is still active, and hence the diagnosis may have to be made on clinical grounds alone. He states that the best method of prophylaxis is to eradicate the disease from cattle by inoculation of calves with a vaccine of attenuated Brucella abortus strain 19. Until this is done the second line of defense is compulsory pasteurization and compulsory reporting so that health officers can trace outbreaks of the disease. The threat of legal proceedings against the distributors of infected milk and the owners of infected herds should stamp out the disease.

Pituitary Implants of Radioactive Gold and Yttrium.—Symptomatic improvement or even arrest of mammary and prostatic carcinoma occurs in some patients after removal or destruction of the adenohypophysis. One method of destruction is to introduce a radioactive isotope into the pituitary gland through a cannula passing through the nose and the sphenoidal sinus. Stretton Young described the structural changes in the pituitary after the implantation of radioactive isotopes of gold and yttrium (*Lancet* 1:548, 1957). Pituitaries were obtained at autopsy from patients who had previously received radioactive pituitary implants for mammary or prostatic carcinoma. Irradiation varied from periods of 31 hours to 150 days. In no case did the implants cause complete necrosis of the pituitary. A minimum of about 70,000 r of gamma-irradiation appears to be necessary to cause necrosis in most parts of the gland, and cells adjacent to the capsule and those around blood vessels are more resistant to radionecrosis than those elsewhere. Chromophobic, eosinophilic, and basophilic cells appear to be equally susceptible to the necrotizing effects of beta and gamma-irradiation. On the basis of absence of mitotic activity there is no evidence of regeneration after irradiation.

Growing Life Expectancy.—The life tables volume of the Registrar General's Decennial Supplement for England and Wales, 1951, now published, shows that the life expectancy of a boy at birth has increased by nearly 15 years in the past 40 years; for a girl, the increase is more than 16 years. In 1910 to 1912, 120 of every 1,000 boys born and 98 of every 1,000 girls born died before reaching their first birthday. The corresponding figures for 1950 to 1952 were 33 boys and 25 girls The longevity of women has increased more than that of men At age 60, for instance, the life expectancy in 1950 to 1952 for men was about 14¾ years, an increase of only ¾ year on the figure of 20 years earlier, whereas for women the life expectancy was 18 years, an increase of 1½ years in this period Persons living in England have a higher life expectancy than those living in Scotland or Wales In rural areas the mortality, particularly for men, is much lower than the national average

Deaths from Tuberculosis and Cancer—Provisional figures for deaths in England and Wales, in 1956, issued by the registrar general, show that the total number of deaths from respiratory tuberculosis was 4,851, compared with 5,837 in 1955, giving a death rate of 109 per million persons This is a decrease of 17% compared with the previous year, and means that, since 1947, the death rate from respiratory tuberculosis has fallen by more than 75% The provisional death rate from all forms of cancer for men was 2,274 per million population and 1,891 for women, the 1955 figures were 2,252 and 1,873 respectively The rise in the rate for men includes an increase from 693 to 726 per million population for deaths from cancer of the lung and bronchus The corresponding rate for women increased from 106 per million in 1955 to 111 in 1956

Mental Disease Statistics—In the annual report of the Institute of Psychiatry of the University of London, an examination of the records of 11,000 mental patients is discussed Of the 9,000 patients admitted to observation units, just over 25% recovered quickly from short-lived disturbances, so that after two or three weeks they were able to return home Of those admitted, 7% died in the observation units Many of these were suffering from a confusional state, delirium, or other mental disease accompanying the later stages of physical disease From the first admission rates, it is calculated that, of every 1,000 babies born, 53 will be admitted at least once in their life to a mental hospital, 10 of these will suffer from schizophrenia, 11 from manic-depressive and involutional psychoses, 24 from psychoses of old age, 2 from organic psychoses (excluding cerebral arteriosclerosis), and 6 from other mental disorders The first admission rates also show a striking difference in regard to the marital status of the patients In the group of men aged between 30 and 49 years, the number of first admissions per million was 1,455 (±196) for single men and 299 (±38) for married men, the corresponding figures for women were 1,262 (±173) and 536 (±52) Moreover, single persons stayed in hospital for longer periods than married persons In brief, single persons were found to be more likely than married persons to enter mental hospitals, and, once in, they were less likely to reach the point at which they could be discharged

Enteritis from Tortoise—M E M Thomas (*Month Bull Min Health* 16 29, 1957) reports that in May, 1955, a Moroccan tortoise was introduced into a household in which there had been a pair of tortoises for the preceding two years Within a month the condition of the two older tortoises had deteriorated and they suffered loss of appetite, and all five children in the household suffered from acute enteritis The new tortoise was found to be heavily infected with a salicin-fermenting paracolon organism resembling Salmonella paratyphi B Feces were not examined until two weeks after the illnesses, but the tortoise type of paracolon bacillus was then isolated in pure culture from one child who was 18 months old The organism was probably an atypical member of the Arizona group

Fats and Coronary Thrombosis—In a paper read before the Manchester Medical Society, Dr J N Morris, the director of the Medical Research Council's social medicine research unit, stated that he was unable to trace any correlation between mortality from coronary heart disease and trends in fat consumption In his view, the marked variations in the mortality in western countries with comparable high-fat intakes were in accordance with the suggestion that total fat consumption was the critical factor Changes in the consumption of animal fat in Great Britain in the present century could be related to changes in the incidence of coronary atheroma as recorded at the London Hospital, but they showed no relation to the registrar general s figures on mortality from coronary heart disease The trend of consumption of butterfat in Great Britain showed less than no relation, as indicated by the steep increase in the number of coronary deaths since 1943 Changes in the intake of vegetable fats showed a closer relation to the mortality, and changes in intake of hydrogenated fat showed a still closer relation, except that the distribution of coronary mortality by social classes was not in accordance with the class pattern of margarine intake International evidence is even more contradictory In Norway, where there is high consumption of margarine, there seem to be fewer cases of fatal coronary thrombosis than in New Zealand where little margarine is eaten Are the Norwegians protected by eating fish? If so, this does not explain why Aberdeen reported twice the coronary death rate of Oslo In terms of total essential fatty acids, the only available data for Great Britain give no support to the hypothesis that the population is now suffering from an absolute or relative deficiency of these nutrients One possible explanation of the apparent anomalies of the present moment is that several dietary factors may be involved or that diet is only one of several causes of ischemic heart disease

Plastic Transfusion Sets—The use of plastic instead of rubber tubing has reduced the incidence of thrombophlebitis by about 50%, according to a report to the Medical Research Council (*Lancet* 1 595, 1957) The tubing used in the trials was made of polyvinyl chloride with added plasticizer and stabilizer In a comparable control series, the standard rubber sets supplied by the National Blood Transfusion Service were used Among the infusions lasting more than 12 hours, reactions occurred in 32% of those with the plastic sets and in 56% of those with the rubber sets The percentage of severe and moderately severe reactions was 18 for those with the plastic sets and 34 for those using the rubber sets The incidents and severity of thrombophlebitis increased appreciably with the length of the infusion for each set The superiority of the plastic set was apparent in each of the groups studied

THE LEISURE CORNER

GARDENING AS A HOBBY

One of the more agreeable consequences of pursuing the suburban way of life is to be found in the garden A garden is sensitive to the will of the caretaker, it has to meet the needs and the taste of the person who undertakes the responsibility for its care The physician who cultivates gardening as a hobby will find it both an art and a science, as well as a healthful and delightful outdoor activity

In gardening, soil management is, first of all, of the utmost importance Soil should be prepared with one of the animal manures, rot from stables or fecal matter from the chicken, sheep, or cow This should be thoroughly worked into the soil and can be used at the rate of 1 lb for every 3 sq ft Most garden soils are comprised of five intermingled components mineral substances obtained from the slow disintegration of rock surfaces, humus or decaying organic matter, large quantities of minute living organisms such as bacteria, protozoa, and fungi, water, which holds in solution the dissolved mineral salts, and air

Experts on gardening point out that fall is the best time to remodel a garden As summer dissolves into autumn, there is a noticeable feeling of change taking place in the garden Overcrowded iris or day lilies require digging or division, delphinium must be moved to sheltered spots, and storm-damaged trees must be repaired or thinned Also there are shrubs to be planted, there is a lawn to be redone, and there are fences to be built or paths to be paved

Almost every gardener takes pride in the beauty of his lawn Unfortunately, too many people fail to recognize that a lawn is not a matter of temporary planting —on the contrary, it is a matter of permanent planting An adequately prepared lawn, one planted for posterity, may be as permanent and luxuriant as the trees that cast their shade over it Many lawns that surround the attractive manor homes of England were actually planted more than 500 years ago In creating a successful lawn, provision should be made for adequate preparation of the soil before planting, selection of proper seed, and sowing, watering, and rolling Most home owners desire a lawn of luxuriant green turf which will withstand a reasonable amount of wear and can be maintained with a minimum expenditure of time and money Kentucky bluegrass will meet these requirements more completely than any other type of lawn grass under average conditions of care and maintenance However, Kentucky bluegrass has several definite requirements for satisfactory growth It prefers a moderately cool climate, it requires a fairly fertile soil, it thrives best on good garden loam with a tendency toward heaviness, and it requires a soil with a pH ranging between 6 and 7 5

The term annual" is applied to flowering or foilage plants that give good results in a single season from seeds, such as petunia, zinnia, sweet alyssum, or castor bean Perennials have the added advantage of relative permanence Once planted, most perennials do not require resetting for three years Many of them produce springtime flowers, before the annuals appear above the ground, while most perennials produce plenty of bloom before late summer or fall

A few well-planted beds of roses within a small enclosure can provide a great deal of pleasure throughout the season Partly because of the special esteem in which the rose is held, partly because of the cultura requirements of the rose, and partly because the rose lacks the fullness of growth characteristic of some cultivated plants, it demands special compositiona arrangement In planning a rose garden, a few essential considerations should be kept in mind an enclosure that does not lack air and that gives shelter from the wind, a background wall or hedge from which the blooms may be seen to the best advantage and a geometric pattern to give the design definite form, so that the garden will have a beauty of its own When roses are cut for decorative purposes, they should preferably be cut early in the morning, before they have been affected for hours by the sun

Ever since the Alpine garden and the wild garden were introduced in England in the second half of the 19th century, the many possibilities of rock gardens have had a steadily increasing vogue At its best, a rock garden consists of a collection of Alpine plants in an environment closely approximating the conditions of their native habitat True Alpine plants grow in a stone soil that is moist but through which water passes readily The regions of our country which favor the development of rock gardens are found near the Great Lakes, the mountains and hills of the Appalachian chain, the rugged landscapes of New England, the Rocky Mountain states, and the Pacific Coast A site surrounded by an artificial atmosphere is inappropriate for a rock garden A rock garden should harmonize with the informality and casual character of natural foliage Honeysuckle, juniper, and Japanese yew are several of the shrubs suitable for a rock garden

The herb garden was one of the earliest expressions of garden art during the Renaissance Physic gardens at that time were planted within the cloistered walls of monasteries From these gardens the Monks dispensed a variety of medicinal herbs in an effort to alleviate the physical suffering and distress of their people This was a period when the enjoyment of plants for their beauty alone, while not entirely forgotten, was at least secondary in importance to their potential therapeutic uses Plants were regarded as a source of medicine, as a flavoring in cooking, as a source of color in dyeing materials, and in some instances for their fragrance alone Knowledge of these plants was general throughout the countryside, as is made evident by the wealth of plant names found in most European languages The many superstitions and the folklore surrounding such plants were passed on from one generation to another

Early colonial settlers in the United States brought with them a knowledge and understanding of the various uses of herbs, and before long many familiar Old World plants were flourishing in the villages and towns of New England In the 19th century interest in herbs declined steadily, and the herb garden as such became an almost forgotten thing of the past Within the past decade or so, there has been a reawakening of interest in the culture and use of herbs, so that once again many persons have begun to appreciate the quaint beauty and charm of the herb garden

Herbs are divided into several groups Aromatic herbs are grown for fragrance, culinary herbs are used as flavoring ingredients in cooking, and medicinal herbs still play a limited role in modern medicine, while herbs grown for coloring are incorporated in various dyes

Gardening is a delightful experience for many physicians Those physician-gardeners who own a small greenhouse are fortunate indeed, as they are able to carry on their gardening activities throughout the year New types of greenhouses have recently been designed along simple, efficient lines, greatly reducing construction costs A small greenhouse is now well within the pocketbook range of many gardeners Such an investment usually pays large dividends in both beauty and *relaxed, joyful activity*

MEDICAL FILM REVIEWS

Safe and Effective Oxygen Therapy 16 mm, color, sound showing time 22 minutes Produced in 1956 for and procurable on loan from Linde Air Products Company, 30 E 42nd St, New York 17

This film outlines the current procedures for administering oxygen by mask, catheter, tent, and hood The mechanisms by which the control of oxygen is maintained are stressed The use of oxygen in Isolettes and incubators is described, and the importance of observing the oxygen concentration in the incubator is brought out Intermittent positive-pressure breathing valves, aerosol, and high-humidity devices are also demonstrated and discussed The flow meters response to various types of back-pressure created by resistant apparatus and the adjustment for this are also shown Throughout the film, the necessary precautions against such things as excessive noise and combustion, as well as various possible sources for ignition, are stressed and discussed The importance of maintaining certain concentrations as ordered is brought out This film has been well prepared and is highly recommended for medical students, nurses, interns, and nurses aides

Fractures of the Shaft of the Femur 16 mm, color, sound, showing time 21 minutes Produced in 1956 by Churchill Wexler Productions, Los Angeles, for the Veterans Administration Procurable on loan from Central Office Film Library, Veterans Administration, Washington 25, D C

This film explains that, in treating fractures of the shaft of the femur, the surgeon is working against the pull of some of the strongest muscle groups in the body The film discusses the various means of overcoming the displacements caused by these muscles Treatment for fractures of the upper, middle, and lower portions of the shaft are demonstrated The principles of suspension traction as well as open reduction are illustrated, and the problems of after-care are considered Balanced traction is emphasized, which is proper for a film of this type The most widely used methods of internal fixation are demonstrated by diagram and by actual surgical illustration No attempt is made to present the more complicated surgical procedures The photography is excellent, with superb diagrammatic illustrations, and the narration is excellent This is a basic teaching film and should be of interest to all physicians who treat fractures It should be of specific teaching value for those in training and for general practitioner groups

Stapes Mobilization, Footplate Visualization Method 16 mm, color, silent, showing time 11 minutes Prepared by George E Shambaugh Jr, M D Eugene L Derlacki M D, and Wiley H Harrison M D, Chicago Produced in 1956 by Mervin W LaRue, Inc, Chicago Procurable on loan or purchase ($200) from George E Shambaugh Jr, M D 55 E Washington St, Chicago

This film depicts the technique of stapes mobilization, as developed by the authors, with photography of a complete operation from the injection of local anesthesia to the final dressing This technique emphasizes direct visualization of the footplate at 16 × magnification through the operating microscope The steps in the operation are demonstrated by means of endoscopic photography, and the motions of the mobilization of the stapes are well shown Of particular interest are the two sequences in the film which show clearly how the actual footplate of the stapes can be mobilized by this technique The sequence is very good, and clinical data, indications for surgery, and results are demonstrated by means of charts and audiograms This is an excellent film and should be of particular interest to otolaryngologists and otologists However, there may be interested practitioners, medical students, and audiologists who would like to view this for a better understanding of the physiology of hearing

NEW FILM ADDED TO A M A MOTION PICTURE LIBRARY

Principles of Respiratory Mechanics, Part II 16 mm color sound, showing time 21 minutes Prepared by Jere Mead, M D Edward P Radford, M D, Benjamin G Ferris Jr, M D, James L Whittenberger M D, Harvard School of Public Health, and Matilda C Smith, National Foundation for Infantile Paralysis Produced in 1956 by Science Pictures, Inc, under a grant from the National Foundation for Infantile Paralysis Procurable on loan (service charge $1 00) from Motion Picture Library, American Medical Association, 535 N Dearborn St, Chicago 10

This film uses both normal subjects and patients with asthma, pulmonary fibrosis, emphysema, and respiratory muscle paralysis to illustrate alterations in the mechanics of breathing produced by disease Models and animated drawings are used to illustrate pulmonary subdivision and such concepts as work of breathing and the value of mechanical measurements The pictures of normal and abnormal human subjects are supplemented with diagrams which show instructive laboratory experiments The two mechanical models are outstanding The organization of the picture is good, and the content is well summarized The photography is excellent It is a basic teaching film and should be most useful in courses on the physiology of respiration for medical students during the first or second year It should also interest physicians

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Lesions of Lung in Geriatric Patients Incidence and Surgical Mortality E J Beattie Jr J Am Geriatrics Soc 5 54-58 (Jan) 1957 [Baltimore]

Of 190 patients with pulmonary lesions that either required operation or could not be diagnosed, 79 were 60 years of age or older Of the 111 patients who were less than 60 years old, 33 had malignant tumors, 56 had pulmonary infections, and 22 had miscellaneous lesions Of 46 patients who were less than 60 years of age and who underwent thoracic operations, 22 had exploratory thoracotomy and lung biopsy, 17 lobectomy, and 7 pneumonectomy One of the 46 patients had ventricular fibrillation during the induction of anesthesia and died 36 hours after the operation Operative death rate was of 2 2% Of the 79 patients who were 60 years of age or older, 49 had malignant tumors, 17 had infections, and 13 had miscellaneous lesions, the commonest being pulmonary infarction The incidence of pulmonary cancers thus was 62% in the older patients as compared to 30% in the younger patients Of the 79, 47 underwent thoracic operations, 20 had exploratory thoracotomy, 13 lobectomy, and 14 pneumonectomy There were 4 operative deaths from pulmonary embolism, pulmonary edema, uremia, and pulmonary insufficiency respectively The operative death rate was 8 5%, as compared to 2 2% among the patients aged less than 60 years

Incidence of Complications Among Elderly Hospital Patients M Rang Lancet 1 401-402 (Feb 23) 1957 [London]

How do older patients fare in hospital? Are older patients less able to bear hospital discipline and procedures than young and middle-aged patients? Are they more likely to develop complications than younger patients? What complications occur in the hospital, and what proportion of patients are affected? In an attempt to answer these questions a survey was made of the complications arising during the 12 weeks from July to October in 2 geriatric wards, 1 for men and 1 for women, each with 30 beds All conditions arising during the survey that had been absent on admission and that were not clearly related to the patients' original disease were classed as complications During the period of the survey there were 86 admissions and 82 discharges Complications developed in 45 patients 12 of whom had more than 1 complication (60 complications in all) Four of the men and 2 of the women had been admitted to give their relatives a rest from home nursing In all 6 of these patients complications developed Patients in a general medical ward with 30 beds and 26 residents of a half-way house (a residence attached to the hospital for elderly persons) served as controls

Complications developed in 2 of every 3 patients admitted to a geriatric unit, whereas in a general medical ward complications developed in only 1 patient in 10 The complication interval (the time between complications for any geriatric bed) was roughly 11 weeks—four times shorter than that of either the general medical ward or half-way house Complications developed in 26 (39%) of the 67 women in the geriatric ward and in 19 (26%) of the 74 men, but the proportion of men in whom further complications developed was about twice as great as that for women Nearly half of the complications (26 of 60) were due to infection Four of 5 urinary infections such as "catheter fever" and pyuria developed after urine (sterile on culture) had been withdrawn by catheterization This cannot be blamed entirely on the nurse's technique, for the same nurses working in other hospital departments do not introduce infection Twelve complications were due to falls or to confusion Taking a slightly demented older person out of his home and putting him in a large ward, expecting him to climb in and out of a hospital bed, subjecting him to a routine that is strange and at times alarming, and asking him to try to walk with few and unfamiliar handholds puts a big strain on him A 4th of all deaths in the 2 geriatric wards were due to complications It is estimated that in a geriatric unit of 80 beds 1 complication may be expected every day and 3 deaths from complications each month

Pulmonary Tuberculosis and Diabetes Mellitus M T Warwick Quart J Med 26 31-42 (Jan) 1957 [Oxford, England]

The prevalence of pulmonary tuberculosis among patients attending the diabetic clinic at University College Hospital between 1940 and 1954 was 18 2 per 1,000 diabetic patients examined The prevalence among a sample of the general population was 4 9 per 1,000 The author reports observations on 104 patients with diabetes and active tuberculosis, about half of whom came under the care of a hospital for chest diseases and the rest of whom attended a diabetic clinic where tuberculosis was diagnosed during the course of their supervision There was a greater prevalence of tuberculosis among diabetic women than among diabetic men in practically all age groups up to the age of 65 In the group of diabetic patients

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Thus age, sex, control of diabetes and ketosis influenced the prevalence of tuberculosis No evidence was found to support the specific radiologic appearances described as 'diabetic tuberculosis' Twenty-five per cent of diabetic patients treated for tuberculosis before 1950 died from tuberculosis between 3 and 7 years from its onset but no patient in this study treated with antituberculous drugs has yet died from tuberculosis Factors influencing prognosis were control of diabetes, the initial extent of tuberculosis, and the method of treatment of tuberculosis

Portal Circulation in Portal Hypertension I Bergstrand and C A Ekman Acta radiol 47 1-22 (Jan) 1957 (In English) [Stockholm]

One hundred fifteen lienoportal venograms were made with an automatic film changer and by standardized technique in 88 patients, 70 of whom were studied in detail The 70 patients were subdivided in 2 groups, i e, group A comprising 16 patients with normal circulation in the portal system and group B comprising 54 patients with portal hypertension Of the 16 patients in group A who served as controls, 15 showed no evidence of liver disease or any disease involving the portal system and 1 man had a long history of heart disease, without signs of cardiac decompensation The spleen was not enlarged in most of the patients Of the 54 patients in group B, 6 had an expansive growth either involving the splenic vein or the portal trunk, with consequent extrahepatic portal obstruction, or the expansive process was intrahepatic, 36 had cirrhosis of the liver, 9 had extrahepatic thrombosis, and 3 had miscellaneous diseases Changes in the collateral circulation, the velocity of flow, and the width of the portal and splenic veins as observed in the lienoportal venograms of the 54 patients with confirmed portal hypertension were compared with those of group A

A filling of the collateral vessels, such as the short gastric veins, intercostal veins, coronary vein, inferior mesenteric vein, and the veins in the hepatoduodenal ligament, was regularly obtained in the patients with portal hypertension but never in the controls Filling of the collateral vessels was a sign of the circulatory change due to the increased pressure gradient between the portal and caval systems in all the patients Atkinson and co-workers found a collateral circulation to be a definite, though not regular, sign of increased portal pressure They claimed that the size of the collateral circulation in patients with portal hypertension is roughly proportional to the increase in portal pressure, such correlation was not found by the authors The velocity of flow in the portal circulation was practically always lower in the patients with portal hypertension than in the controls This finding was based on determinations made by measuring the spleen-hilum time, the spleen-liver time, and the emptying time of portal branches in seconds The widths of the splenic and portal veins were often increased in the patients with portal hypertension In patients with hepatic cirrhosis the accumulation of the contrast medium in the liver parenchyma was less dense and the hepatic veins were less frequently demonstrable than in the controls The method used in this study is accurate enough for the clinical diagnosis of portal hypertension

The Liver, Biliary Tract and Pancreas in the Aged An Anatomic and Laboratory Evaluation Z R Morgan and M Feldman J Am Geriatrics Soc 5 59 65 (Jan) 1957 [Baltimore]

The liver, biliary tract, and pancreas were studied on autopsy in 74 patients between the ages of 75 and 95 years in whom the clinical evaluation had not revealed any pathological conditions in the hepato-biliary-pancreatic system Lesions of the liver were found in 12 of the 74 patients, of these 3 had Laennec's cirrhosis, 1 primary carcinoma, 5 pronounced fatty degeneration, 2 congenital cysts, and 1 necrosis Thus the incidence of hepatic lesions was low The weight of the liver was determined in 72 of the 74 patients and was normal in 50 Most of the patients were not alcoholics, and that may account for the fact that only 3 had Laennec's cirrhosis The liver in older persons functions with a large margin of safety, and liver diseases are not a major cause of death Biliary stones were found in 27 of the 74 patients Pancreatic disease was not a major cause of death in this group of older patients Diabetes mellitus was present in 3 patients The spleen showed few, if any, pathological changes Splenomegaly was observed in 13 of the 74 patients and was associated with an enlarged liver in 4 Biochemical studies of the blood had been carried out in 19 patients during life, they yielded little information regarding the condition of the liver, gallbladder, and pancreas In older patients, functional changes in these organs are not measurable by ordinary methods of examination

Spectacular Effect of Deltacortisone on Postgastrectomy Deficiency Edemas P Vesin, P Frumusan and R Cattan Semaine hôp Paris 33 72-75 (Jan 10) 1957 (In French) [Paris]

The postgastrectomy deficiency syndrome is characterized by profound impairment of the general condition, with asthenia, loss of weight, and severe edema of the lower limbs and lumbar region, sometimes even anasarca, often accompanied by diarrhea The basic biological disturbance, in addition to hypochromic anemia, hypolipemia with hypocholesterolemia, and

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The Liver, Biliary Tract and Pancreas in the Aged An Anatomic and Laboratory Evaluation Z R Morgan and M Feldman J Am Geriatrics Soc 5 59-65 (Jan) 1957 [Baltimore]

The liver, biliary tract, and pancreas were studied on autopsy in 74 patients between the ages of 75 and 95 years in whom the clinical evaluation had not revealed any pathological conditions in the hepato-biliary-pancreatic system Lesions of the liver were found in 12 of the 74 patients, of these 3 had Laennec s cirrhosis, 1 primary carcinoma, 5 pronounced fatty degeneration, 2 congenital cysts, and 1 necrosis Thus the incidence of hepatic lesions was low The weight of the liver was determined in 72 of the 74 patients and was normal in 50 Most of the patients were not alcoholics, and that may account for the fact that only 3 had Laennec s cirrhosis The liver in older persons functions with a large margin of safety, and liver diseases are not a major cause of death Biliary stones were found in 27 of the 74 patients Pancreatic disease was not a major cause of death in this group of older patients Diabetes mellitus was present in 3 patients The spleen showed few, if any, pathological changes Splenomegaly was observed in 13 of the 74 patients and was associated with an enlarged liver in 4 Biochemical studies of the blood had been carried out in 19 patients during life, they yielded little information regarding the condition of the liver, gallbladder, and pancreas In older patients, functional changes in these organs are not measurable by ordinary methods of examination

Spectacular Effect of Deltacortisone on Postgastrectomy Deficiency Edemas P Vesin, P Frumusan and R Cattan Semaine hôp Paris 33 72-75 (Jan 10) 1957 (In French) [Paris]

The postgastrectomy deficiency syndrome is characterized by profound impairment of the general condition, with asthenia, loss of weight, and severe edema of the lower limbs and lumbar region, sometimes even anasarca, often accompanied by diarrhea The basic biological disturbance, in addition to hypochromic anemia, hypolipemia with hypocholesterolemia, and hypocalcemia, is the existence of pronounced hypoproteinemia and the decided reduction in blood albumin The administration of deltacortisone to 3 patients presenting this syndrome was followed by water and sodium diuresis resulting in the complete disappearance of edema and a definite improvement in the general condition, with restoration of appetite The rapidity with which these effects were secured contrasted strongly with the prolonged period needed when the customary methods of treatment (plasma therapy and milk given in divided doses) are used

The capital part played by aldosterone in sodium retention, as shown by the high level of urinary aldosterone found in all patients with chronic progressive edema, whether the underlying condition is nephrotic, cardiac, cirrhotic, or hypoproteinemic, formed the basis for the authors original suggestion that cortisone might inhibit the aldosterone hypersecretion and so lead to the disappearance of sodium retention and to sodium diuresis Various observations have since confirmed the importance of aldosterone in sodium retention and the value of deltacortisone in the treatment of edema Other studies, however, seem to show that the action of deltacortisone is indirect and that the reduction in aldosterone secretion is brought about by a hydroelectrolytic change, the nature of which is unknown The similarity between the various forms of edema—cardiac, cirrhotic, nephrotic, and hypoproteinemic—suggests that chronic edema should be regarded as a 'disease of homeostasis " The remarkable antiedemic action of deltacortisone and its beneficial effect on the appetite and the general condition make it exceptionally valuable in the treatment of deficiency edemas It should be supplemented, however, by standard measures, such as realimentation, milk therapy, plasma therapy, transfusions, and intravenously administered albumin, which are still indispensable to the restoration of the body s protein reserves

Relations between Arteriosclerosis and the Serum Cholesterol Level P David and E Eddie Union méd Canada 86 155-159 (Feb) 1957 (In French) [Montreal]

Serums of 720 patients were analyzed for cholesterol in order to establish the relationship between atherosclerosis and hypercholesterolemia The patients were divided into 2 groups (1) 392 with arteriosclerosis who suffered from angina pectoris, myocardial infarction, hypertension, and uncomplicated arteriosclerosis and (2) 328 with rheumatic or congenital heart disease or with diseases other than cardiac diseases Of the 1st group 146 (37 2%) and of the 2nd group 44 (13 4%) had a marked increase of their serum cholesterol levels The normal level in man varies from 132 to 300 mg per 100 cc, but the level in the individual remains nearly constant An increase of the total cholesterol in the blood may signify a passing of cholesterol from the tissue into the blood, whereas a higher serum cholesterol level may signify a migration of the cholesterol of the erythrocytes into the serum These modifications are due to the influence of the hypophysis, the gonads, and the thyroid

Hypercholesterolemia appears not to be indispensable for the formation or development of atherosclerosis, since many patients with this disease have normal serum cholesterol levels Disorders of the total lipid metabolism in patients with atherosclerosis might be reflected in the cholesterol metabolism Hypercholesterolemia, therefore, may indicate atherosclerosis, but this is far from being the rule, because many factors affect the cholesterol metabolism

Present Status of the Treatment of Ascitic Cirrhoses with Deltacortisone R Cattan and P Vesin Semaine hôp Paris 33 76-79 (Jan 10) 1957 (In French) [Paris]

Deltacortisone, which has an intense diuretic action and causes only slight sodium retention when given in standard doses, has been found to be useful in the treatment of patients with ascitic cirrhoses (excluding those in coma) In a series of 32 patients the drug gave complete relief of edema persisting after the withdrawal of deltacortisone in 14 and temporary relief of edema during therapy in 4 and failed in 14 These figures and those of others seem to show that 3 or 4 patients in 10 respond favorably to deltacortisone The effect of the drug, however, is unpredictable, and unexplained failures are frequent Two factors that may be significant in this connection are the presence of renal lesions and the existence of severe progressive hepatic insufficiency The best results are apparently obtained when the general condition is fairly good, although many patients in poor condition as a result of denutrition and anorexia have also been successfully treated

The effect of deltacortisone in edema is due primarily to its action on salt and water metabolism Diuresis usually begins during the first 3 or 4 days but may be late, appearing about the 8th day Consequently, treatment with deltacortisone should not be given up before 10 days have elapsed The quantity of urine excreted may rise from 500 or 1,000 cc a day before treatment to 2,000 or 3,000 cc or even more when diuresis sets in Interesting features of the diuresis are that it often occurs chiefly at night, that it leads to a rapid loss of weight, sometimes amounting to several hundred grams a day, and that, in spite of its intensity, it is not accompanied by thirst A factor of major importance in every patient in whom dehydration was secured and maintained after the withdrawal of deltacortisone was the urinary excretion of enormous amounts of sodium, leading to a negative sodium balance Hyponatremia, however, was never observed, on the contrary, the blood sodium level often increased as the edema regressed This sodium diuresis, without which dehydration is impossible, marked the end of the intense sodium retention found in these patients The mechanism by which the change was produced seemed to be the disappearance of adrenocortical hypersecretion of aldosterone with its powerful sodium-retaining properties

Contraindications to the use of deltacortisone are found chiefly in patients with a history of gastroduodenal ulcer, diabetes, or renal lesions (hematuria and azotemia) The presence of ordinary pyogenic or tuberculous infections is not a contraindication if the ppropriate antibacterial therapy is given at the same me Corticotherapy, when combined with antibi- ics, can often be used to advantage in the treatment infections, especially tuberculosis Deltacortisone is n ideal treatment for patients with edema and should e tried first unless contraindicated A suitable scheme f treatment would consist of an observation period f 8 or 10 days, with bed rest and partial suppression f salt in the diet, followed by the administration of eltacortisone in doses of 40 mg the 1st day, 30 mg the d day, and 20 mg the 3rd day and daily thereafter ntil dehydration has been secured The deltacorti- ne may then be withdrawn, but the patient should e kept under observation The weight in particular ould be closely watched, and an easy-to-follow salt- oor diet should be continued for some time Other ethods, such as a rigidly salt-poor diet, the use of ercurial diuretics, ion-exchange resins, and aceta- olamide (Diamox), must be used if deltacortisone ils to relieve the edema, but, even when these ethods are needed, deltacortisone may be continued n doses of from 10 to 20 mg a day because of its norexic and euphoriant effect

elf Healing, or Abortive, and Residual Forms of hildhood Leprosy and Their Probable Significance

B Lara and J O Nolasco Internat J Leprosy 4 245 263 (July-Sept) 1956 [New Orleans]

Of 347 children with leprosy observed at the Culion anitarium in the Philippines in the course of 24 years, 87 were studied for 2 years or longer after the onset f the disease Some of the children were born at the anitarium and others were still nonleprous when admitted with their leprous mothers Spontaneous, apparently complete healing occurred in 223 patients 77 7%) despite continued residence in the infected nvironment Incomplete healing—recurring exacerbations alternating with periods of incomplete subsidence of lesions—was observed in 36 (12 5%) The disease tended to progress in the remaining 28 (9 7%)

There was correlation between the process of healing and the clinical morphology of the initial or earliest recognizable lesions, as well as with the bacteriological, histological, and immunological features The incidence of complete healing of the lesions was highest among the patients with papulonodules and other definitely circumscribed, thickened initial lesions and lowest among the patients with the infiltration-like, more or less diffusely thickened initial lesions In patients with the wheal-like and the raised and flat macular lesions the incidence occupied an intermediate position There a fairly good correlation was found between low bacterial content of the lesions, strong reaction to repeated intracutaneous injections of lepromin (Mitsuda test), and a high proportion of healed lesions The correlation between clinical morphology and healing seemed to be even more consistent Concerning histological correlation, healing of lesions with undifferentiated, round-cell, or monocytic infiltrates occurred earlier than that of lesions with a tuberculoid structure, except for papulonodules

Relapses, when they occurred, were chiefly noted within less than 3 years of apparent healing, gradually becoming more rare after longer periods, and relapses were practically not seen at all after 10 years Relapses occurred more frequently in children whose early lesions showed a tuberculoid appearance on microscopic examination than in those with undifferentiated lesions They were also more frequently observed among the patients with wheal-like and macular early lesions than among those with papulonodules, lichenoid, or scar-like indurated lesions Eight patients showed inconspicuous, minimal, definite or suspicious signs of active disease, such as enlarged or tender nerve trunks, with or without anesthesia, and micropapulate or follicular residual lesions at or near anesthetic atrophic scars These residual lesions are likely to be overlooked in ordinary surveys, especially without the aid of previous records or history It is probable that most of them are benign but there is always the possibility that they and other undetected forms of apparently healed, or latent, primary infections may serve as sources for further dissemination *Continued observations on the development of lesions* in a group of children who while very young had been given repeated intracutaneous injections of lepromin were compared with those in a group similar in age and sex who did not receive lepromin injections Findings supported the earlier suggestion that lepromin injections in the form of the Mitsuda test may have protective value, especially when given to very young children

Infections in Leprosy Institutions

A R Davison Internat J Leprosy 24 275-279 (July-Sept) 1956 [New Orleans]

The concepts of some leprologists that leprosy is only or mostly, acquired in infancy and that it is unnecessary for adults to take even rudimentary precautions against infection are considered dangerous by Davison He describes the cases of 2 physicians, born in England, who acquired leprosy at the ages of 53 and 60 years while working as medical officers at a leprosy institution in Pretoria, South Africa, 3 Europeans who contracted leprosy as adults when working as overseers in leprosy institutions in South Africa, and 10 cases among adult Bantus who worked in leprosy institutions and contracted the disease at the average age of 46 years, although the onset of leprosy among Bantu males occurs generally at the age of 19 A plea is made for elementary hygienic practices by the staff in leprosy institutions

Another concept that is attacked by the author as dangerous is that leprosy can be contracted only after long-continued close contact He describes a case of leprosy in a male native child who was born of a leprous woman in an African leprosy institution The infant was removed from his mother 6 weeks after birth and had not been exposed to infection after that The first symptoms of leprosy occurred in the child 13 months later The author believes that infected persons should not come in contact with children and that breast feeding of children born in leprosy institutions is to be condemned

SURGERY

Mucosal Carcinomas as a Result of Irradiation D P Slaughter and H W Southwick A M A Arch Surg 74 420-429 (March) 1957 [Chicago]

The authors present 9 patients in whom carcinoma arose in mucous membranes included in a field of radiation therapy In 6 of these patients squamous cell carcinomas of mucous membranes developed in areas treated by external roentgen irradiation from 9 to 25 years before appearance of the tumors Each patient experienced late radiodermatitis in the skin utilized for the external port There was also fibrosis of the tissues between the skin and the affected mucosa There was microscopic evidence of radiation change in the mucosa and submucosa of all the cancer-bearing areas Treatment was unsuccessful, and the authors believe that this failure was due to the multicentric origin of the tumors, with new foci developing in the irradiated mucosa at a rate impossible to control Three of these tumors, the 2 of the tongue and the 1 of the anus, developed in patients treated for cancer of adjacent organs or tissues The anal lesion could hardly be a late localized recurrence of the cancer of the cervix treated 11 years before, the one epidermoid carcinoma of the tongue could not be a recurrence of malignant mixed tumor of the parotid, which showed no local persistence after 9 years The other tongue lesion occurred in an irradiated area 13 years after successful radiotherapy for a presumed cancer of the nasopharynx The 2 hypopharyngeal cancers occurred in patients treated for inflammatory cervical lesions, one of them tuberculous adenitis The squamous cell cancer of the buccal mucosa represents the culmination of a compound tragedy of errors in a patient whose ossifying fibroma of the upper maxilla was erroneously diagnosed as adamantinoma and treated with irradiation over a period of years Even if the tumor had been an adamantinoma the irradiation was incorrect treatment

In 3 patients adenocarcinoma developed An adenocarcinoma of the transverse colon developed directly beneath an obvious area of skin change on the anterior abdominal wall where irradiation had been used as treatment for a duodenal ulcer four years before The time interval is short as compared with the intervals in reports of other irradiation-induced cancers, but the previous treatment and residual objective findings at least suggest a causal connection The carcinoma of the rectosigmoid occurred in the field of irradiation in a woman treated for cancer of the uterine cervix Again the time interval is only three years, but there is demonstrable irradiation change in the intestinal wall about the tumor In the patient with the adenocarcinoma of the cervical esophagus the long interval between irradiation and tumor formation (25 years) and the obvious irradiation changes in the tissues of the neck indicate that this is almost certainly an irradiation-induced cancer The epithelium of mucous membranes, like that of the skin, is capable of malignant tumor formation as a late effect of irradiation

NEUROLOGY & PSYCHIATRY

Virologic Investigations on the Etiology of Two Institutional Epidemics of Poliomyelitis P Kraus Monatsschr Kinderh 105 17-19 (Jan) 1957 (In German) [Berlin]

One of the 2 poliomyelitis epidemics discussed in this paper occurred in an infant nursery, the other in a whooping cough pavilion in another children's hospital In the infants' nursery 10 strains of poliomyelitis virus, all of which belonged to the Brunhilde or type 1 virus, were cultured from 23 specimens of feces, This type of virus was isolated not only in the nursling, who seemed to be the carrier responsible for the epidemic outbreak, but also in 5 of the 8 infants in whom symptoms of poliomyelitis developed and in 1 of 5 who remained free from symptoms The epidemic character of this outbreak, which occurred in July and August, was proved not only by the presence of type 1 virus but also by the demonstration of neutralizing antibodies in nearly all the infants This, moreover, proved that the capacity of infants to form antibodies is not significantly less than that of adults Two of the 9 infants who had symptoms had the meningitic form of poliomyelitis, and all the others had paralytic signs

The epidemic in the whooping cough pavilion occurred in December, 1955 The paralytic form of poliomyelitis occurred in only 1 of 22 young children Spinal punctures were performed in all of these children and an increase in the cell count was observed in 10 of the remaining 21 Examination of the feces disclosed poliomyelitis strains of type 1 in 4 of these 10 children The same type of virus was found also in the feces of the child with paralytic poliomyelitis and in the feces of 1 of the 4 nurses Serologic tests were carried out in all of the children twice The comparison of spinal cell counts with the serologic tests indicated an increase in the titer, showing that infection had taken place in all but 3 of the children The fact that no serologic changes were detected in 5 despite an increase in the cerebrospinal fluid cell count is explained by technical inadequacies The contrary occurrence, that is, a serologic reaction without a spinal fluid reaction, which was observed in 3 patients, proves that a poliomyelitis viremia (the prerequisite of antibody formation) can occur without a pathological reaction in the central nervous system Despite the differences in the clinical manifestations of these 2 epidemics, they showed the characteristics that the authors had previously observed in infections with type 1 virus, namely, a tendency to cause epidemics in groups not immunized against poliomyelitis

Value of Pneumoencephalography and Other Methods of Examination in Diagnosis of Organic Brain Diseases Study of Clinical Material C L Laane, T Solheim and A Straand Tidsskr norske lægefor 77 107-112 (Feb 1) 1957 (In Norwegian) [Oslo]

Pneumoencephalography is helpful in evaluating the possible presence of organic brain changes Because of suspected brain disease suggested by clinical, electroencephalographic, and/or neurological findings, it was carried out in a series of 100 psychiatric patients and ive positive evidence of organic brain disease in 70 Most of the positive pneumoencephalographic results ere in patients aged 31 to 60 years with duration f illness of 1 to 10 years In 44 of 49 patients with linical signs of organic brain disease the pneumo- ncephalographic examination gave positive results he results were positive in 25 of 28 patients with ositive electroencephalographic findings and in 20 of 2 with positive neurological findings Roentgeno raphic examination of the head was of little value Besides pneumoencephalography, careful clinical ex- mination is the most valuable method for detecting rganic disease of the brain

Abnormal Immunological Reactions in Disseminated clerosis A Preliminary Report H V Smith M L E spir, C W M Whitty and W R Russell J Neurol eurosurg & Psychiat 20 1-10 (Feb) 1957 [London]

It has been established that the injection of tubercu- n into the spinal fluid of a sensitized subject evokes a ave of inflammation involving the meninges and to ome extent the vessels of the brain and spinal cord his is a true antibody-antigen response It exerts a rofound effect on the permeability of the blood-brain arrier, and it has proved a useful adjuvant in the reatment of tuberculous meningitis Because it was uggested to the authors that these reactions might be eneficial in multiple sclerosis, they studied the effects f the intrathecal injection of tuberculin in this disease nd compared them with the effects in psychosis of ixed etiology The different factors involved were xplained to the patients with multiple sclerosis, and olunteers were obtained Most of the patients had een under observation for months or years Serial Mantoux tests were done in the usual way with old uberculin, diluted to 1 in 10,000, 1 in 1,000, and 1 in 00 The purified protein derivative of tuberculin was sed for the intrathecal injections The mental dis- rders in the controls ranged from mental deficiency o advanced schizophrenia, and some had been sub- ected to cingulectomy and leukotomy In all of them he spinal fluid was normal at the first examination

Striking and consistent differences were observed between the intrathecal tuberculin reaction in the patients with multiple sclerosis and the controls In particular, the correlation seen in the controls between the intensity of the intrathecal reaction and the result of both the Mantoux test and the dose of tuberculin was not apparent in multiple sclerosis The pattern of the reaction also was distorted, in that the characteristic polymorphonuclear leukocyte component was suppressed, while the increase in protein was exaggerated A similar suppression of the polymorphonuclear component could be artificially produced in controls by giving cortisone The response in tuberculin-negative patients with multiple sclerosis to vaccination with Wells' vole vaccine or BCG was anomalous, in that, contrary to experience with the controls, sensitization of the skin and of the meninges was markedly dissociated The immediate clinical effects of the intrathecal injection of tuberculin were alarming in 2 patients with brain-stem lesions but otherwise were associated with little immediate change in the clinical findings Follow-up studies suggested, however, that the course of the illness may have been modified for good

Electroencephalogram in Narcolepsy D D Daly and R E Yoss Electroencephalog & Clin Neurophysiol 9 109 120 (Feb) 1957 [Montreal, Canada]

Narcolepsy is characterized by episodes of sleep usually of brief duration but recurring many times daily In many instances there are associated cataplectic attacks characterized by loss of muscle tone without change in consciousness These attacks are commonly induced by laughter, anger, fright, or startling stimuli Episodes of so-called sleep paralysis may occur while falling asleep or awakening During these the patient is conscious but unable to move Many patients with narcolepsy are also subject to hypnagogic hallucinations and nightmares The 100 patients reviewed in this article belong to a series of 241, in all of whom the diagnosis of narcolepsy had been established clinically This group of 100 patients in whom electroencephalographic studies were made did not differ in any essentials from the entire group of 241 patients The series was compiled by selecting consecutively the records of 100 patients from the files of the electroencephalographic laboratory during the years of 1950 to 1954 Sixty-four of the patients were men and 36 women Seventy-one were between 21 and 50 years of age The decade of age in which there was the largest number of patients was 31 to 40 years In 85 of the patients the narcolepsy was associated with other symptoms of cataplexy, sleep paralysis, or nightmares in varying combinations The most frequent combination, occurring in 37, was narcoleptic and cataplectic attacks

Recordings were made on 8-channel model IV Grass electroencephalographs A total of 14 electrodes was used No attempt was made to permit the patients to go to sleep during the routine recording The basal or alert electroencephalograms were found to be within normal limits Drowsiness began within the first 4 minutes of the recording in most patients Almost all patients manifested drowsiness at some time during the recording Sustained drowsiness lasting for periods up to 30 minutes was characteristic of these patients Opening and closing the eyes, counting, hyperventilation, and photic stimulation, measures which alert the normal patient were commonly ineffective in narcoleptics In spite of persistent drowsiness, actual sleep was uncommon under the circumstances in which the recordings were made Electroencephalograms made during cataplectic attacks and an attack of sleep paralysis were normal

Medical Aspects of Boxing, Particularly from a Neurological Standpoint M Critchley Brit M J 1 357-362 (Feb 16) 1957 [London]

The author has observed 69 patients with chronic neurological disease due to boxing Many of these showed evidences of punch-drunkenness, either early or well established Chronic progressive traumatic encephalopathy of boxers is suggested by the author as an alternative name for the popular term "punch-drunkenness." Punch-drunkenness is more frequent among professionals than among amateurs and among second-rate or third-rate performers than in the intelligent scientific exponent with a championship title. It is rare in Negroes. Punch-drunk states have been found in fighters of all weights, but most characteristically in small men who had not been particular about the size of their opponents, having often taken on contestants heavier than themselves. There is a correlation between the degree of craniofacial marking and the intensity of the punch-drunk syndrome. The total number of bouts is important, as well as the number of occasions on which the boxers have been rendered unconscious. As a rule, gradual evolution of mental and physical anomalies marks the insidious onset of the encephalopathy. Among mental symptoms there is the slow appearance of a fatuous or euphoric dementia with emotional lability. The victim shows little insight into his condition. Speech and thought become progressively slower, memory, efficiency, and conduct deteriorate, and there may be mood-swings, intense irritability, and sometimes truculence leading to uninhibited violent behavior. Simple fatuous cheerfulness is, however, the most prevailing mood, although sometimes there is depression with a paranoid coloring. The patient may complain of persistent dull headache, postural dizziness, deafness, poor vision, intolerance toward alcohol, unsteady gait, and shakiness. Occasionally periodic convulsions bring the victim to the doctor.

The condition popularly referred to as a "groggy state" is the result of severe battering sustained during a particular contest. The victim develops a mental confusion with subsequent amnesia, and an impairment in the speed and accuracy of his motor skill. In this state he makes feeble and poorly coordinated movements, his limbs are ataxic, and he is inefficient and vulnerable. An accumulation of groggy states probably leads to a permanent punch-drunk syndrome. Remitting cerebral concussion is suggested as an alternative term for groggy state. Minor nonspecific anomalies are common in the encephalogram of experienced boxers. Such findings are more frequent and more intense in those with punch-drunkenness. The electroencephalogram is a less sensitive index of punch-drunkenness than is the clinical evidence, for symptoms and signs may be present at a time when the electroencephalogram appears to be normal. A return to a normal state in a series of electroencephalograms taken in a particular patient cannot be regarded as a physiological, anatomic, or clinical recovery.

Brain Abscess and Cerebral Venous Thrombosis Associated with Congenital Cardiac Defects. G. Weber. Schweiz. med. Wchnschr. 87:159-163 (Feb. 16) 1957 (In German) [Basel, Switzerland]

Of 79 consecutive patients with brain abscess, 4 had congenital cardiac defects. Of the 4 patients, the 1st, a 13-year-old boy, with pulmonary stenosis and transposition of the aorta, had a chronic sterile abscess in the lateral posterior segment of the right frontal lobe. The encapsulated abscess was extirpated from the subcortical medullary layer of the frontal lobe, and complete recovery resulted. The 2nd patient, a 24-year-old man with transposition of the aorta and with atrioventricular septal defect, had an acute nonencapsulated abscess in the lateral posterior segment of the right frontal lobe which was punctured and drained through a trephine opening in the right lateral portion of the frontal lobe. Antibiotic treatment was practiced with large doses of penicillin, streptomycin, and sulfonamides, and complete recovery resulted. The 3rd patient, a 25-year-old woman whose heart had 1 atrium and 2 ventricles, also had hypoplasia of the right ventricle, high ventricular septal defect, subtotal auricular septal defect, atresia of the tricuspid valve, transposition of the aorta, and pulmonary stenosis, an abscess located in the left temporal lobe was found to be associated with a large internal pyocephalus, which caused central respiratory paralysis and death. The 4th patient, an 8½-year-old boy whose heart had 1 atrium and 2 ventricles and atresia of the tricuspid valve, had an acute frontoparietal brain abscess associated with a craniopharyngioma, death resulted from respiratory paralysis. A 5th patient, an 11-month-old girl with Fallot's tetralogy, had thrombosis of the superior sagittal sinus and the cerebropontine veins. Death resulted from hemorrhagic infarction of both cerebral hemispheres.

Brain abscess and thrombosis of cerebral vessels may occur as complications in patients predominantly aged less than 30 years with congenital cardiac defects. A brain abscess may be associated with a congenital heart defect with intracardiac admixture of venous with arterial blood, and, therefore, most frequently with tetralogy of Fallot. The occurrence of a brain abscess is favored by a compensatory polyglobulism, which causes increased viscosity of the blood, slows the peripheral blood flow and so probably favors thrombosis. The source of infection frequently remains unknown in patients with such a brain abscess. It may be located in the area of either the greater or the lesser circulation. Brain abscesses associated with congenital cardiac defects are, as a rule, amenable to treatment.

GYNECOLOGY & OBSTETRICS

The Effect of Hysterectomy on Young Women. W. M. Jacobs, H. I. Daily and S. H. Wills. Surg. Gynec. & Obstet. 104:307-309 (March) 1957 [Chicago]

Of a series of 568 hysterectomies, 68 (12.1%) were performed on women under 30. Forty-six of the 68 could be interviewed from 1 to 2½ years after the hysterectomy, and the following questions were asked: 1. Do you feel that your operation was worth while, and are your symptoms relieved? 2. Has the operation affected your sexual life? 3. Are you concerned about having no future menstrual periods? 4. Are you concerned that you will not be able to become pregnant? 5. Do you have any hot flushes or extreme nervousness, and, if so, do you take any treatment for these symptoms? All but 4 of the 46 patients were completely relieved of their symptoms, 3 were partially relieved, and 1 patient stated that she had not been helped by the operation Regarding the effect on sexual relations 28 said that there was no change, 13 who had had dyspareunia before operation were relieved of this and now had greater sexual satisfaction, and 5 reported that sexual relations were slightly less satisfactory, but they were not unduly concerned None expressed concern over the loss of menstrual function Only 2 of the 46 patients worried about the loss of fertility Twenty-seven patients reported no vasomotor symptoms and 19 reported mild to moderate symptoms, quickly relieved by mild sedation

The authors conclude that the more complete type of hysterectomy provides much better results than does partial resection, leaving behind a nonfunctioning uterus simply because a patient happens to be relatively young If the pelvic disease has made future pregnancies impossible, a total hysterectomy should be performed, provided the patient is in good physical condition and has been made aware of the procedure and agrees to it beforehand

A Study of Bladder Function Following Vaginal Hysterectomy J W Bowers, C W Moeckel, G L Yates and H R Wesson Surg Gynec & Obst 104 287-294 (March) 1957 [Chicago]

Cystoscopic, cystographic, and manometric studies were performed in 15 patients treated by vaginal hysterectomy and repair The patients were unselected except that, in 8, postoperative urethral catheter drainage was carried out and, in 7, postoperative trocar cystotomy drainage Observations on these 15 patients indicate that after temporary postoperative atony of the detrusor the voiding contraction approaches preoperative levels by the 5th to 7th days Postoperative bladder capacity is always less than before surgery Spastic bladder phenomena are frequently associated with retention and residual urine Postoperative urinary retention and associated voiding difficulties are most closely related to vesical neck obstruction, i e , surgical overcorrection, urethral edema, and sphincter spasm

In 100 of 200 vaginal hysterectomies indwellling urethral catheter drainage was carried out postoperatively and in the other 100 vaginal hysterectomies diversion of the urinary stream by means of trocar cystotomy was performed in the operating room It was found that trocar cystotomy, as a form of temparary bladder drainage, is associated with a slight increase in morbidity, prolongation of initiation of voiding and of hospital stay postoperatively, increase in residual urine on discharge, and increase in frequency of late postoperative bladder symptoms Direct complications of trocar cystotomy were bladder calculi (7 cases), hematuria (4 cases), and late rupture of bladder (1 case) Bladder calculi have recently been prevented by weak acid irrigations postoperatively Trocar cystotomy drainage has the advantages of requiring less nursing care and increasing the patient s comfort Trocar cystotomy drainage appears to be a valuable adjunct in the management of bladder dysfunction following vaginal hysterectomy, routinely or in selected cases in which a prolonged period of urinary retention is anticipated General anesthesia was followed by a 20% higher morbidity than spinal anesthesia in the entire series of 200 cases Trocar cystotomy appeared to circumvent the postoperative urethritis which is so often a distressing sequel to indwelling urethral catheter drainage

Diagnostic Value of Puncture of Rectouterine Excavation (Douglas' Pouch) in Intra abdominal Hemorrhage Caused by Extrauterine Pregnancy E Hermann Zentralbl Gynak 78 700-706 (No 18) 1956 (In German) [Leipzig, Germany]

At the hospital with which this author is connected, puncture of the rectouterine excavation has been used systematically for more than 2 decades, particularly for the differentiation of complications caused by extrauterine pregnancies from inflammatory gynecologic disorders Puncture of the rectouterine excavation is of particular value because it reduces the number of exploratory laparotomies, and at the author's clinic an operation for a suspected ectopic pregnancy is almost never carried out without a diagnostic puncture of the rectouterine excavation Exceptions to this rule are cases in which an ectopic pregnancy is either not suspected or a tubal rupture is clearly evident The author believes that a diagnosis of a ruptured tubal pregnancy is made if puncture yields not only a relatively large quantity of blood but particularly if clots are present The aspiration of a large quantity of blood always indicates a threatening condition, but the aspiration of only a small quantity, or a negative aspiration, does not necessarily rule out an extrauterine pregnancy If the clinical findings are suggestive then the operation is performed even if the puncture yields no blood, otherwise the patient is carefully observed for 24 hours and then the puncture is repeated The author does not resort to irrigation of the rectouterine excavation

A total of 313 patients with suspected ectopic pregnancy were admitted to the author s clinic in the decade between 1946 and 1955, in some the suspicion of an ectopic pregnancy being raised only after admission The diagnosis of an extrauterine pregnancy could be excluded in 20 of these patients on the basis of a thorough general and gynecologic examination A puncture of the rectouterine excavation was done in 290 of the remaining 293 In 179 the puncture gave a positive result, an operation was performed in 176, and the extrauterine pregnancy was found in 164 of these women Of the 3 not operated on 1 died during the examination as the result of hemorrhage, the other 2 were not operated on because the gynecologic examination did not indicate an extrauterine pregnancy despite the presence of blood in the rectouterine excavation Tubal pregnancy was found in 162 (26 tubal ruptures and 136 tubal abortions) and omental pregnancies in 2 women The 12 patients in whom the operation did not disclose an extrauterine pregnancy included 5 with a ruptured corpus luteum cyst, 2 with a ruptured follicular cyst, 1 with tubal tuberculosis, 1 with a uterine perforation resulting from curettage, and 1 with a perforated duodenal ulcer, in the remaining 2 the origin of the hemorrhage could not be ascertained In 111 of the 290 patients puncture of the rectouterine excavation gave a negative result

PEDIATRICS

Vaccinations Against Smallpox in Very Young Children H J Doorschodt Maandschr kindergeneesk 25 1-8 (Jan) 1957 (In Dutch) [Leyden, Netherlands]

The author comments on the complications of smallpox vaccination, giving particular attention to postvacinal encephalitis Changes in the regulations on vaccinations in the Netherlands have provided an opportunity to shed more light on the incidence of this serious complication Evidence was obtained that it was much less frequent when the primary vaccination was carried out in children less than 2 years old than in older children The aim of the studies presented here was to investigate whether smallpox vaccination could be successfully carried out at a very early age, that is, during the first 3 months of life Studies were made on over 1,000 infants between 6 weeks and 1 year old The efficacy of vaccination was ascertained by determining the antihemagglutinin and virus-neutralizing antibodies in the serum of the vaccinated child 3 weeks after the inoculation with smallpox vaccine

It was found that the amount of antibodies present in infants less than 3 months old was on the average only slightly lower than in older children The author concludes that if vaccination is performed carefully it is as successful in infants of less than 3 months than in older children Furthermore, the vaccination of young infants has a number of advantages over that in older children 1 The young child does not appear sick after vaccination, and this fact reduces the opposition of the public to vaccination 2 The fact that the young child is alone in his cradle reduces the danger of spreading complications caused by the vaccine 3 The danger of the postvaccinal encephalitis is very slight at this early age 4 Contraindications such as the existence of eczema or exposure to acute infections is likewise less than later 5 If smallpox vaccination is complete at 4 months of age, immunization against whooping cough, diphtheria, and tetanus can be begun

Heat Regulation of the Premature Infant in Climatized Incubators Improvement of Thermal Insulation of Incubators with Plexiglas Hoods J Gleiss Ztschr Kinderh 79 147-157 (No 2) 1957 (In German) [Berlin]

The following questions were investigated 1 Do the rhythmical temperature fluctuations of climatized incubators with warm-air blowers influence the thermoregulation of permature infants? 2 How do the thermoregulating mechanisms of the incubator and the infant within it react to rapid changes in the surrounding room temperature? The dependence of the thermal regulation of the premature infant on that of the incubator becomes most clearly evident in the behavior of the infant s "internal" temperature (measured in stomach or rectum) Measurements demonstrated that the thermoregulation of premature infants is influenced by the rhythmical temperature fluctuation of incubators The "internal" temperature of a premature infant reacts the more readily the more premature the child is Changes in room temperature amounting to several degrees (Centigrade) influence the temperature in the incubator and with this that of the infant, in that the infant's "internal" temperature changes in the same direction (up or down) as does the room temperature

It was found that inadequate insulation of the incubator hood is the essential cause of thermoability of the incubator and of the infant within it In order to improve the thermal insulation of the incubators heated by warm air currents, it is suggested that an air-jacket be created by inserting a thin-walled plexiglas layer within the outer hood To further reduce the thermal disturbances in closed incubators heated by warm air currents it is suggested that the opening admitting the warm air should be at the foot end rather than at the head end The physician is responsible for any harm that a premature infant may sustain in an incubator For this reason he must inform himself about the construction and the mode of operation of incubators so that injurious effects will be avoided

Intrauterine Forms of Breathing K Dietel and V Dietel Ztschr Kinderh 79 203-210 (No 2) 1957 (In German) [Berlin]

The term "maturation of the respiratory center, implies that lower forms of breathing (gasping and periodic breathing) become replaced by the normal rhythm of breathing The more immature the fetus or child the greater is the tendency to lower forms of breathing Gasping or snapping respiration, for instance, has been observed in fetuses delivered during the 4th month of gestation Hiccup is a special form of snapping respiration, in which the diaphragm is lowered so the air is inspired in jerks Periodic breathing of the Cheyne-Stokes type is most frequent during immaturity The respiratory center in the medulla oblongata is an ontogenetic unit in which the lower centers such as those for the gasping or snapping form of breathing or for periodic breathing are being superseded or replaced by higher centers governing the normal rhythm of breathing During the process of dying the ontogenetic processes in the composite respiratory center are reversed, in that the normal respiratory rhythm is replaced by periodic and this again by gasping respiration The authors are concerned with the question as to what forms of respiration can be observed in the fetus in utero Rhythmical, gliding, and wave-like movements can be observed in the region of the maternal umbilicus as pregnancy draws to the end They are strongest in cases in which the chest of the fetus lies against the anterior wall of the uterus The intrauterine respiratory movements can be seen, felt, or registered with Marey's capsule through the maternal abdominal wall

In the investigations carried out by these authors the forms of respirations of the fetus in utero were compared with those observed in premature infants The palpating hand differentiated between respiratory and body movements Most of the tests were made at the end of pregnancy Normal respiratory rhythm was observed most frequently It generally continued for 2 to 5 minutes The longest period during which the authors were able to register it was 13 minutes, then the fetal chest turned somewhat, so that no further movements could be observed The normal rhythm is interrupted by periods of arrest of varying length, but averaging 20 or 30 seconds The longest intrauterine apnea lasted 2 minutes Periodic breathing such as is observed in immature premature infants is characterized also in the fetus in utero by gradual decrease in the depth of breathing followed by respiratory arrest Alternating changes between normal and periodic rhythm are frequent in utero Pure hiccup was observed in one case 2 days before delivery, but otherwise this type of respiration is more frequent during the middle than toward the end of pregnancy Why do forms of respiration occur before birth that occur only in the immature and during the decay of the respiratory center? In the fetus in utero the higher respiratory centers may interrupt their function This also interrupts the inhibitions which are exerted by these centers on the lower centers Thus lower forms of respiration may appear Two different respiratory rhythms may show relative coordination in utero Certain stimuli modify the automatism of the higher centers temporarily

Conduct Disorders in Epileptic Children F Grunberg and D A Pond J Neurol Neurosurg & Psychiat 20 65 68 (Feb) 1957 [London]

Fifty-three epileptic children with behavior disorders were compared with 53 psychiatrically normal epileptic children in respect to organic, genetic, and social environmental factors The 2 groups differed significantly as to their social environment The epileptic children with behavior disorders had a more disturbed family background The most significant social environmental factors were a disturbed emotional maternal attitude towards the child and experiences by the child of breaks and changes in environment When 35 epileptic children with behavior disorders were compared with 35 nonepileptic children with the same behavior problems, the same adverse social environmental factors were found in both groups The disturbed family background associated with conduct disorders in childhood epilepsy, whether causal or not, must be dealt with by combined medical and child-guidance techniques

DERMATOLOGY

Rhythms in the Biologic Process in Normal and Abnormal Nails A Stuhmer Arch klin exp Derm 204 1-12 (No 1) 1957 (In German) [Berlin]

In some patients with psoriasis rows of small pits arranged chain-like along the longitudinal ribs of the nail were observed The development of these rows of pits suggests a periodicity in the process of psoriasis The stimulus apparently acts on the proximal end of the nail matrix for only 2 or 3 days at a time Then the nail growth is normal again, but after an interval of 28 or 30 days the stimulus that produces the pits recurs Uninterrupted chains of these pits can be observed from the nail bed to the anterior rim of the nail In patients with diffuse scleroderma, roof-shingle-like markings could be seen on the surface of the nails These same changes, although somewhat less pronounced, were observed also on the nails of patients with psoriasis and on the nails of elderly persons without skin lesions The author designates these structural changes in the nails as shingle-like onychodystrophy, and emphasizes that they suggest rhythmical changes in the growth of the nails

Treatment of Tuberculosis of the Skin According to Statistics of 369 Treated Cases from 1941 to 1956 C Huriez and P H Pelce Semaine hôp Paris 33 571-580 (Feb 14) 1957 (In French) [Paris]

A series of 369 patients with tuberculosis of the skin were treated during the last 15 years in the most phthisiogenic region of northern France Lupus vulgaris was cured in 55% of the patients by a rotating treatment with antibiotics and calciferol Isoniazid combined with streptomycin and calciferol resulted in the cure of all varieties of tuberculous lupus Thanks to isoniazid, the healing rates of patients with tuberculosis of the skin, who scarcely responded to vitamins, improved greatly 80% of those with initial lesions 100% of those with verrucous forms, 75% of those with vegetative ulcers, and only 55% of those with scrofuloderma were healed, although isoniazid had been injected in situ The necessity of a combined antibiosis with isoniazid as the essential element, of a prolonged use of the antibiotics for at least 1 year, and of complementary therapy with vitamin D_2 is emphasized Further experiments showed a 'cortisone-like' action of large doses of vitamin D_2 Good results were obtained in 20 patients, particularly in 6 with scrofuloderma, by corticotherapy combined with antibiotics This treatment cannot be generally applied because of the risk of tuberculosis It should be used only in patients, who do not respond to treatment with antibiotics and vitamins An increase of the isoniazid level, after cortisone was given, was observed in a study of isoniazid metabolism, made in 250 blood tests This proved the potentiating action of cortisone The histological changes during treatment with antibiotics resulted in collagenous sclerosis, which is the final stage common to all healing processes The authors emphasize the rotating therapy of antibiotics and vitamin D_2 The general trend in the treatment of infectious lesions is to combine specific with nonspecific agents

OTOLARYNGOLOGY

Antibiotic Deafness O Popper South African M J 31 54-56 (Jan 19) 1957 [Cape Town, South Africa]

The author reports on 93 patients with antibiotic deafness Wide incisions of the posterior quadrant of the ear drum were made The discharge was tenacious and viscid in 1 patient, in whom fluid in the middle ear had persisted for months, and the author had to incise 5 times Incision was made three times in 7 and twice in 17 patients This treatment was insufficient for 18 patients Drainage of the attic and antrum tympanicum cleared the condition of these patients completely The method used was an endaural transtympanic atticoantrostomy An acute otitis media is not necessarily cured by the administration of antibiotics Antibiotic deafness is due to the retention of fluid in the middle ear after acute otitis media treated with antibiotics Conductive deafness may be caused by the large doses of antibiotics, which act rapidly (within 24 hours), arresting inflammation The retained fluid becomes sterile and the capillaries are not stimulated to dilate and absorb this fluid This is likely to become reinfected The infection may be latent in the attic and antrum Treatment should be as conservative as possible It varies from simple incision to more extensive measure

Bronchogenic Carcinoma Diagnostic Aspects of 228 Proved Cases C H Steele Laryngoscope 67 137-146 (Feb) 1957 [St Louis]

Of 228 patients between the ages of 31 and 80 years with proved bronchogenic carcinoma, 200 were men and 28 were women The diagnosis was established by biopsy exploration, or autopsy A positive diagnosis was made by bronchoscopic biopsy in 92 (40 4%) Two hundred four (89 9%) of the 228 patients smoked, 150 (65 7%) smoked 20 or more cigarettes daily, or an equivalent amount of pipe or cigar tobacco, for periods ranging from 20 to 45 years Two hundred three patients (89%) were city dwellers and lived in an environment in which the atmosphere contained varying amounts of possible carcinogenic dusts, gasses, fumes, and chemicals Sixty-five per cent of the group worked indoors, and 35% worked predominantly outdoors Examination of operative or autopsy specimens revealed squamous cell carcinoma in 103, undifferentiated carcinoma in 77, and adenocarcinoma in 48 While only a small percentage of the epidermoid and undifferentiated carcinomas occurred in women, a more nearly equal distribution was found in adenocarcinoma

The cardinal symptoms of bronchogenic carcinoma in order of frequency were cough, lingering respiratory symptoms after influenza, chest cold or pneumonia, chest discomfort or pain, dyspnea, and hemoptysis The average duration of symptoms from onset to positive diagnosis was 7 6 months The average delay from the first medical consultation to positive diagnosis was 3 1 months Signs of endobronchial obstructions were the most common physical signs Roentgenograms of the chest proved to be the most valuable single means of obtaining a presumptive diagnosis of pulmonary cancer Two hundred twenty-one patients (97%) were suspected by the roentgenologist to have *bronchogenic carcinoma* Bronchoscopy was of value in establishing the diagnosis of bronchogenic carcinoma by visualization and biopsy of the lesion and by permitting bronchial lavage of selected areas of the pulmonary tree for cytological examination Bronchoscopy was also an aid in determining operability based on the presence or absence of anatomic-pathological changes in the tracheobronchial tree suggestive of bronchogenic carcinoma

Cytological study of bronchial aspirate specimens, after bronchial lavage, was done in 61 patients The presence of malignant cells was noted in those obtained from 29 (47 5%) of the 61 patients A high percentage of bronchial aspirates containing malignant cells was revealed by the cytological study of specimens obtained by abrasion of the bronchial wall with bronchoscopic forceps or aspirator followed by forceful washing of such areas with sodium chloride solution With increased experience, a positive diagnosis of bronchogenic carcinoma was made by cytological examination of bronchoscopically recovered secretions in 55 5%, while such a diagnosis was made with the aid of forceps biopsy in 25 9%

Intubation Granuloma S S Epstein and P Winston J Laryng & Otol 71 37-48 (Jan) 1957 [London]

Intubation granuloma is a complication of endotracheal anesthesia that is becoming more frequent due to the increasing use of intubation There is no doubt that the condition is far more common than the 55 cases collected from the literature would indicate The data on these 55 cases are tabulated and the authors present findings on 10 additional cases observed in a London hospital between 1948 and 1956 A few of these patients were referred to the staff of this hospital following operation elsewhere Six of the 10 patients had unilateral and 4 had bilateral lesions Hoarseness is the presenting symptom in most patients Respiratory obstruction may occur if the granuloma is large and especially if bilateral Emergency removal may be necessitated on this account The diagnosis is easily made in a patient who complains of persistent postoperative hoarseness Intubation under direct vision with the smallest possible tube, use of muscular relaxants, avoidance of too light a plane of anesthesia during induction, and prevention of excessive flexion of the neck during operation have been suggested as prophylactic measures, but the authors regard their value as debatable They believe that the Magill tube by virtue of its shape and resilience must be held responsible for pressure necrosis in the region of the posterior commissure and occasionally on the anterior tracheal wall Dwyer strongly recommended a tube curved in two planes to achieve greater conformity with the natural shape of the air passages

As intubation granuloma originates from an abrasion of the vocal process, there is little doubt that early recognition of postintubation laryngeal damage will minimize the risk of subsequent granuloma formation Hoarseness persisting more than 2 days after an operation in which intubation was performed is a clear indication for laryngoscopy Should there be any ulceration of the vocal process, absolute vocal rest until complete healing occurs is probably the most important single factor in the prevention of intubation granuloma *Removal of a sessile intubation granuloma* exposes a large bare area which will gradually heal by granulation, possibly with recurrence of granuloma formation

The Clinical Significance of the Ramification of the Recurrent Laryngeal Nerves A Critical Anatomical Study H Pichler and A Gisel Laryngoscope 67 105 117 (Feb) 1957 [St Louis]

In 1948, King and Gregg studied the reasons for the various behaviors of the vocal cords after partial or total paralysis of the recurrent laryngeal nerves occur-ing after thyroidectomies and other operations of the throat or after traumas of the neck These American workers emphasized the clinical significance of an extralaryngeal division of the recurrent laryngeal nerve into anterior and posterior branches, which according to their statement 'offers the only rational explanation of all lower motor neuron vocal cord paralyses' King and Gregg's report induced a series of studies carried out by the authors at the Anatomical Institute in Vienna One hundred dissected recurrent laryngeal nerves were prepared, 40 preparations were made in situ, and later 60 were done on isolated larynges Extralaryngeal divisions were found in all of the 100 nerve preparations on microscopic examination The extralaryngeal division of the recurrent nerve was identified as a division in motor and sensory fibers It occurred at the level of the first, second, or third tracheal cartilage At the point of the bifurcation the recurrent nerve gave off a sensory branch which was distributed to the mucosa of the hypopharynx, then split and subdivided, forming an anastomosis between the inferior and superior laryngeal nerves It thus constituted the caudal portion of Galen's loop

This nerve was located on the cricoarytenoideus posterior muscle In every instance, the ramus posterior proper branched off only endolaryngeally The division of the inferior laryngeal nerve into the posterior ramus (the mesial branch) and the anterior ramus (the lateral branch) occurred in all cases about 1 cm above the lower edge of the cricoid cartilage The ramus posterior proper was located below the cricoarytenoideus posterior muscle, between the muscle and the perichondrium The authors could not trace any low extralaryngeal division of the recurrent nerve into abductor and adductor branches, respectively, but the presence of this anatomic condition constitutes an essential requirement of the King-Gregg hypothesis Since most workers express serious doubts concerning the motor innervation of Galen's loop, one must caution against overrating the clinical importance attributed to the presence of an extralaryngeal motor ramus posterior to the recurrent nerve There are serious reasons to doubt that the problem of the baffling behaviors of the vocal cords after thyroidectomy has as yet been satisfactorily solved by the explanation offered by King and Gregg

PATHOLOGY

Statistical Findings and Considerations on Tumors Observed Between 1945 and 1954 P Aresu Rass med sarda 58 33-53 (Jan -Feb) 1956 (In Italian) [Cagliari, Italy]

In 1,914 autopsies performed between 1945 and 1954, 171 tumors were found, of which 26 were benign and 145 malignant Benign tumors were most frequent among patients 40 to 50 years old and malignant tumors among patients 40 to 70 years old and especially among patients in the 60 s The connective tissue and the urogenital apparatus were the most frequent location for benign tumors, the greatest number of malignant tumors were of epithelial origin and occurred most frequently in the digestive tract, followed by the urogenital tract, respiratory tract, and the lymphatic system Most of the benign urogenital tumors were fibromas of the uterus, these were followed by fibroadenomas of the breast The order of frequency in the location of the malignant tumors of the digestive tract was the liver (mainly cancrocirrhosis), stomach, bile ductus, pancreas, rectum, small intestine, palate, tongue, and esophagus Malignant tumors of the urogenital apparatus were located most frequently in the kidney and the uterus, followed by the bladder, prostate, and ovary Almost all tumors of the nervous system were gliomas and were mainly found in the cerebellum and in the frontal and parietal cerebral lobes All the malignant tumors of the respiratory tract occurred in the lungs except for 1 in the pleura and 1 in the larynx The tumors of the skeleton and of the lymphatic apparatus were all of mesenchymal origin

Analysis of the findings in specimens from 5,433 biopsies performed in the same decade revealed the presence of tumor in 2,184, of which 1,509 were malignant and 675 benign Malignant tumors were most frequent among patients 40 to 70 years old More specimens, both malignant and benign, were from women than from men The location in order of frequency for benign tumors was the urogenital tract, breasts, digestive tract, skin, nervous system, and respiratory tract, for malignant tumors it was the urogenital tract (427), digestive tract (382), respiratory tract (131), lymphatic system (113), skin (98), skeleton (46), sensory organs (39), endocrine glands (14), muscles (7), nervous system (5), and the hemopoietic organs (1) The origin of 335 tumors, 89 benign and 246 malignant, could not be established

The Clinical Value of Urinary 17-Ketogenic Steroid Determinations M J Levell, F L Mitchell, C G Paine and A Jordan J Clin Path 10 72-79 (Feb) 1957 [London]

The normal range of urinary 17-ketogenic steroids was established from assays on 182 persons ranging in age from 3 to 101 years The values show a rise during childhood, boys and girls having apparently identical ranges up to the age of 15 years, after which the level in boys rises to a higher average than that in girls Between the ages of 20 and 40 years the geometric mean for men, 12 mg per day, is significantly higher than that for women, 9 3 mg per day At any age the values for either sex seem to be better represented by a log-normal distribution than by a normal one, and for this reason the geometric means are given In later life the excretion of 17-ketogenic steroids in men appears to decline The values for women do not show a similar decline

The authors also present the values found in the following conditions adrenal cortical hypofunction, myxedema, hypopituitarism, pituitary basophilism, the adrenogenital syndrome, hirsuties, diabetes, thyrotoxicosis, amenorrhea, rheumatoid arthritis, and obesity The normal values observed in some patients with adrenal cortical hypofunction and pituitary basophilism and the unexpectedly high values found for adrenal steroids in some patients with pituitary insufficiency illustrate clearly the dangers of placing too much reliance on single determinations The limits of the normal range are wide, so that a person's 17-ketogenic steroid excretion may vary greatly without reaching a value which would be regarded as abnormal. In this respect, the status of the 17-ketogenic steroid assay is similar to that of the 17-ketosteroid estimation. These observations emphasize the desirability of performing an adrenal function test wherever indicated. The high values found in the patients with virilizing adrenal hyperplasias suggest a block in the biosynthesis of 17-hydroxycorticosterone with consequent overproduction of the precursor, 17-hydroxyprogesterone. As this substance does not adequately suppress the pituitary production of corticotropin, the effect is to produce adrenal hyperplasia and, although 17-hydroxyprogesterone is not in itself ketogenic, it is probably converted in part to a 17-ketogenic steroid.

The potentialities of the 17-ketogenic steroid assay in diagnosis and control of treatment are best studied by comparison with the 17-ketosteroid assay. In most of the conditions considered, as far as single estimations are concerned, the two methods yield about the same amount of information as judged by the extent of the departure from normal. In patients suspected of having the adrenogenital syndrome it is advantageous to have both assays performed, but in general it would seem that one would suffice. In view of the undoubted advantage of the 17-ketogenic steroid assay in following changes in adrenal function, as evidenced by corticotropin tests, by treatment of patients with hypothyroidism, and by response to stress, this is the assay of choice.

INDUSTRIAL MEDICINE

The Treatment of Tetraethyl Lead Poisoning. R. R. Boyd, G. Walker and I. N. Henderson. Lancet 1:181-185 (Jan. 26) 1957 [London].

Tetraethyl lead is a highly toxic liquid that is blended with gasoline. This organometal compound is absorbed through the skin and the respiratory and alimentary mucosa. It is probably distributed in a nonionic form, and, being lipid-soluble, it is concentrated in the brain, body fat, and liver. Its toxicity is due to its lead content, and, because of selective uptake, manifestations of poisoning are dominated by involvement of the central nervous system and differ from those of inorganic lead poisoning. Although the inhalation of tetraethyl-lead vapor for a brief period may be fatal, the continued excretion of large amounts of lead in the urine for some time after the removal of symptomless workers from prolonged minor exposure suggests that appreciable quantities of tetraethyl lead may be absorbed and the lead stored in a relatively nontoxic form. Three moderately severe cases of poisoning are described in this report, and a 4th case with a severe psychosis is mentioned. These 4 cases involved men who worked for 6 weeks cleaning underground tanks that had contained leaded gasoline. The affected men scraped the deposit containing tetraethyl lead from the floors and sides of the tank and shovelled it into buckets, which were hauled to the surface and emptied into pits. They were provided with protective clothing and equipment, but they neglected to adhere strictly to the prescribed precautions. During the period in hospital, urine was collected daily for estimation of lead, coproporphyrin and creatinine. In addition lead analysis was performed on daily fecal samples and on blood samples taken frequently.

Three of the patients were treated in turn for 3-day periods with edathamil calcium disodium in doses of 1 Gm. per 30 pounds of body weight per day, given intravenous drip lasting 4 to 6 hours, with 300 mg. of penicillamine 3 times a day by mouth and with 1 Gm. of edathamil calcium disodium by mouth 4 times a day. Intervals of several days were allowed between the different forms of treatment, and each treatment was preceded by 2 control days during which urine, feces, and blood were collected for analysis. The men were confined to bed for the first few days and received amobarbital as a sedative. A high fluid intake and full diet were encouraged. After discharge from the hospital, examinations and analyses were carried out at weekly intervals. Edathamil calcium disodium was given in 1 Gm. doses 4 times a day by mouth for alternate weeks until the clinical condition was satisfactory and the lead excretion normal. They, then took up work that did not involve exposure to toxic hazards.

Edathamil calcium disodium is the monocalcium disodium complex of ethylene diamine tetra-acetic acid. It is a chelating agent that combines with metallic ions forming nonionized, biologically inactive compounds. It has revolutionized the treatment of lead poisoning. Penicillamine (ββ dimethyl cysteine) like dimercaprol contains 2 thiol (-SH) groups per molecule. It increases the urinary excretion of copper in normal subjects and in patients with hepatolenticular degeneration as effectively as does dimercaprol. It was used in these patients to increase lead excretion, but it had little effect in this respect. While the urinary lead excretion was increased sevenfold by the intravenous injection of edathamil calcium disodium, it was influenced little by the oral administration of this drug or of penicillamine. The 4th patient, who had mania, hallucinations, and delusion, responded favorably to electroconvulsion therapy.

Delayed Death Caused by Gassing in a Silo Containing Green Forage. F. M. Troisi. Brit. J. Indust. Med. 14:56-58 (Jan.) 1957 [London].

A youth of 18 years of age and a boy of 12 descended into a silo on a small farm in Italy. The silo was of cement, cylindrical in shape, 6 meters (19 ft.) high and about 4.5 meters (14 ft.) in diameter, and about half its height was buried in the ground, with only one opening in the roof, which was closed with a metallic cover. Green forage, mixed with beans, barley, and oats had been preserved in the silo, which had been nearly empty for about a month, with the cover in place. The 2 youths entered the silo to remove the remaining silage. Shortly after reaching the bottom of the silo they became unconscious. A man of 61 standing nearby went into the silo to help them, and he also lost consciousness. All 3 were dragged out, and artificial respiration was applied. The 2 youths were already dead. The man was immediately taken to the nearest clinic. He appeared to be in extremis, the only sign of life was intermittent cardiac contractions. Artificial respiration was started at once, and cardiac and respiratory stimulants were given together with 500 ml of plasma intravenously After about an hour a few spontaneous respirations began, and in about 10 minutes tachypnea developed Consciousness was not regained at any time After 5 hours he was admitted to hospital completely unconscious This man died on the 5th day, despite the administration of oxygen, respiratory stimulants, and repeated blood transfusions preceded by bleeding The clinical findings were those of asphyxia with delayed death due to carbon dioxide intoxication and perhaps to anoxemia also

It should be remembered that carbon dioxide may accumulate in silos, whether they contain forage or grain The type of silo described above, half-buried in the ground and with a single opening in the roof, should be prohibited All silos should be provided with a free opening at the base Underground tanks and vats must be actively ventilated before they are entered, and the person entering such a chamber must be secured by a rope and be observed from outside When it is necessary to enter a chamber where the presence of carbon dioxide is known or suspected, it is essential to use breathing apparatus that draws air from outside the chamber Posters may be displayed at farms indicating the dangers and the necessary preventive measures Methods for testing enclosed atmospheres for the presence of carbon dioxide and sufficient oxygen are to lower lighted candles or small caged animals into the chamber

Decompression Sickness During the Sinking of a Caisson A Study of Some Factors in the Pathogenesis of Caisson Disease H E Lewis and W D M Paton Brit J Indust Med 14 5-12 (Jan) 1957 [London]

Most of the studies of decompression sickness have been made during the construction of tunnels The sinking of a caisson, however, involves certain special features not encountered in tunnel work This paper describes an investigation into the incidence of decompression sickness during the sinking of reinforced concrete caissons In the period during which the pressure exceeded 18 lb per sq in , there were 79 cases of bends affecting 37 men in a total number of 1,800 compressions at the inlet caisson At the outlet caisson there were another 10 cases in 310 decompressions This gives a total incidence of about 4% The incidence of bends began to rise when the pressure exceeded 20 lb , then rose to a high level for a brief period, and tended to fall thereafter even though the pressure was maintained This almost "epidemic' character of decompression sickness is a very common feature Bends consisted of aching pains most commonly affecting the joints The legs were the most frequently affected and next the arms The knees, wrists, shoulders, head, and the body in general were also affected A few workers were repeatedly victims of mild bends, and 2 had as many as 6 attacks each

Among the contributory factors to what was a rather high rate of decompression sickness were (1) inaccuracy in following the prescribed decompression procedure, (2) accumulation of carbon dioxide in the blister lock in which decompression took place, (3) vigorous muscular exercise immediately before the decompression, due to the ascending 70-ft ladder, (4) chilling because of the temperature difference between the hot face and the cold decompression chamber It is recommended that lock-keepers be properly trained and given sufficient authority for their task, that a recording barograph be attached to any chamber in which decompression of men takes place, that the blister lock be ventilated or "cleared" during decompression, and that the men wait for 10 minutes after climbing the caisson ladder before entering it so that their carbon dioxide production will have decreased to resting levels This waiting period will also tend to reduce the effect of exercise in predisposing to bends If possible, dry clothes should be put on before entering the decompression lock, and the lock should be kept warm during decompression

PUBLIC HEALTH

The Reported Incidence of Glandular Fever An Analysis of a Report of the Public Health Laboratory Service K W Newell J Clin Path 10 20-22 (Feb) 1957 [London]

In recent years pathologists in public health and hospital laboratories in England and Wales have been voluntarily making weekly reports on infectious diseases diagnosed in their laboratories to the director of the Public Health Laboratory Service Infectious mononucleosis is on the list of diseases for which reports are made In 1955 pathologists were asked to give the age, sex, and occupation of the patient for for each case diagnosed Though about 98% of the hospital and public health laboratories in England and Wales take part in the reporting, it does not necessarily follow that every laboratory invariably reports cases of infectious mononucleosis In a preliminary study in 1954 efforts were made to obtain detailed information on the titers obtained in the Paul-Bunnell test and on whether or not absorption tests were made, but the interpretation of reports from so many different pathologists was difficult, and in the main study in 1955 pathologists were only asked to state whether they based their diagnosis on the results of serologic or hematological tests or both

In 1955 pathologists reported 1,861 cases of which 1,769 were diagnosed serologically, alone or in conjunction with blood or clinical examinations, and in 92 findings were similar to those of infectious mononucleosis clinically and hematologically, but serologic findings were negative The analysis deals only with the 1,769 serologically confirmed cases It was found that 50% of the cases were in children under 15 years of age, but only 39% of those in persons between 15 and 19 were in males Infectious mononucleosis in adults was more frequent during the summer, whereas in children under 15 there was no seasonal peak, the distribution being about the same throughout the year Attack rates seemed to be higher in the south of England than in the north From the records on the occupations of 62% of the patients between 16 and 34 years, it appeared probable that occupational differences could be explained by the accessibility of diagnostic facilities The age groups with the highest incidence appeared to be similar in a number different occupations

BOOK REVIEWS

The Early Detection and Prevention of Disease Edited by John P Hubbard M D George S Pepper Professor of Public Health and Preventive Medicine, University of Pennsylvania School of Medicine Philadelphia Cloth $7 50 Pp 350 with 2 illustrations Blakiston Company (division of McGraw-Hill Book Company Inc) 330 W 42nd St New York 36, 95 Farringdon St London, E C 4 England 253 Spadina Rd Toronto 4, Canada, 1957

Some 28 contributors, working in a variety of fields have attempted to set down as briefly as possible the salient points in disease prevention It is surprising, considering space limitations, how much that is of factual importance they have succeeded in presenting Not all diseases could be considered, but the major ones seen in daily practice are broadly viewed Most diseases enter the body via the respiratory or alimentary systems This is especially true in the case of young children, adolescents and adults up to 45 years of age Older people are more likely to suffer from metabolic disturbances Chapter 15 by Klaus Hummeler, deals with viral diseases of the respiratory tract, especially influenza In 1933, an influenza virus was first isolated and identified as a specific pathogen Seven years later an "A and a "B strain, quite different from each other in many respects, were recognized Since then a 'C and possibly a 'D (Japanese) strain have been studied Vaccines made from various strains are only partially successful The antibiotics effective against some viruses have little or no effect against this disease Owing to great changes in the character of strains, vaccines have to be modified from time to time Under optimal conditions the incidence of influenza may be reduced about 90% (less for influenza B) by vaccination

Cancer of the lung is the subject of chapter 16, by Katherine R Boucot, who avoids any extensive allusion to smoking as a cause, save to say that in the light of present knowledge, cutting down on excess is merely common-sense management for all smokers Men over 45 years of age who have a distressing chronic cough, hemoptysis, unilateral wheeze, and weight loss are suspect, and should be carefully studied Even so it may then be too late In patients with frequent coughs and colds, a roentgenogram of the chest should be made every six months Early detection and prevention of tuberculosis is the theme of a chapter by David A Cooper We are now able to diagnose early infection of the lungs by clinical, laboratory, and x-ray studies Aminosalicylic acid and isoniazid are valuable drugs, and with their use, the incidence of tuberculosis continues to decline, but the disease is still far from being eradicated For about 20 years, surgery of the lung has progressed, but it is applied chiefly in advanced cases Since tuberculosis is directly transmitted from an infected to a well person, normal social contacts will always make eradication of the disease difficult An introductory chapter on the changing scene and a later chapter on the prevention of first-attack rheumatic fever were written by the editor He states that in every case of rheumatic fever we should search for the Streptococcus pyogenes To examine a throat and simply report it as "very red without taking a culture is poor procedure and may jeopardize a patient s future health There is much more of interest and profit to the reader in this excellent symposium The paper and print are excellent

Fortschritte der Serologie Von Dr Hans Schmidt Second edition Artificial leather 150 marks Pp 1114 XXIII, with 87 illustrations Verlag Dr Dietrich Steinkopff, Holzhofallee 35 (16) Darmstadt, Germany, [1950-1955]

The first edition of this important work appeared in 1933, and the present edition represents an effort to assimilate the immense number of contributions that have been made in the field of serology since that time in both Europe and America Issued in 18 installments, the book is now complete and totals 1,117 pages The six major divisions deal with antigens, antibodies, the antigen-antibody complex, the formation of antibodies, indirect and secondary effects of the antigen-antibody reaction, and special serologic reactions The first division may be taken as an example of the comprehensiveness of the work It contains sections on specificity and the haptene concept, proteins in general, the specificity of proteins, chemically altered proteins artificially conjugated antigens, carbohydrate protein combinations serologic experiments with chemically marked antigens, reactions of simple compounds of known composition, the limits of specificity, microbial antigens bacterial toxins and animal poisons heterogenetic antigens and antibodies, viruses, and phages The other five divisions of the book are equally detailed and comprehensive

Especially to be commended is the author s plan of disposing of his topics in units of a few pages, so that each unit is followed at once by its bibliography and so constitutes a compact and coherent entity Abbreviations and other special terms are defined and used freely within the unit but are not carried over into remote parts of the text, it is therefore easy to find a complete and intelligible discussion of each topic, so that the book is unusually convenient for quick reference The bibliography is copious and accurate, and an appendix issued with the last installment brings the work up to date on such subjects as localization of antigens, effects of ionizing radiations on antibody production, the antitoxic immune globulins, transfer of passive immunity from mother to fetus, coproantibodies, experimental organ-antibodies, autoantibodies, antibody production in tissue cultures, and properdin The author and subject indexes have been prepared with care, and the printing is flawless This book will be indispensable in any library used by immunologists, serologists and clinical pathologists

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These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated

A Text-Book of Gynaecology for Students and Practitioners By James Young, D S O, M D, F R C O G Consulting Gynaecologist, Royal Infirmary, Edinburgh Tenth edition revised in collaboration with J C McClure Browne, F R C O G F R C S E, Professor of Obstetrics and Gynaecology, University of London London Cloth $9 Pp 253, with 302 illustrations The Macmillan Company, 60 Fifth Ave, New York 11, 1956

This edition appears only two years after the previous one There are two new chapters, one on schistosomiasis (bilharziasis) and the other on syphilis, granuloma inguinale, and lymphopathia venereum Several chapters have been rewritten, the text has been revised, and several new illustrations have been added The authors are not enthusiastic about plastic operations on the oviducts, in spite of the recent extensive literature on this subject They point out that only the smallest doses of estrogens should be used to overcome menopausal symptoms They emphasize that uterine bleeding may occur after the use of estrogens, but they maintain this is produced if the dosage has been somewhat too large and is stopped because of nausea They fail to warn their readers to use the estrogens intermittently and not continuously for long periods of time

The section on operative gynecology is most inadequate and perhaps should have been omitted It occupies only 33 pages Eleven illustrations depict instruments but only two portray vaginal hysterectomy One shows subtotal hysterectomy and one the complete hysterectomy for cancer of the cervix There are very few references in this book In spite of these minor criticisms, the book is outstanding Its popularity and usefulness are attested to by the 10 editions since 1921 This edition, like its predecessors, should prove helpful to students and practitioners throughout the world

Sequeira's Diseases of the Skin By John T Ingram, M D F R C P Physician in Charge, Skin Department General Infirmary Leeds and Reginald T Brain, M D, F R C P Physician in Charge Skin Departments at Royal Free Hospital and Hospital for Sick Children, Gt Ormond Street London Sixth edition Cloth $18 Pp 843, with 489 illustrations The Macmillan Company 60 Fifth Ave New York 11 J & A Churchill Ltd 104 Gloucester Pl Portman Sq, London W 1 England, 1957

The authors of this sixth edition of a well-known English textbook are former students of the late Dr Sequeira Ten years have elapsed since the appearance of the previous edition In view of the marked advances in dermatology during this period, extensive changes have been made in the book and many chapters have been completely rewritten Nevertheless, the volume adheres to the same stereotyped pattern of presentation as its predecessor The general range of skin diseases is covered in detail and the descriptive writing is simple and straightforward Therapeutic procedures are described adequately, although many of the newer ideas, drug information, and techniques are merely enumerated or briefly discussed The adherence of the authors to the formalized and didactic presentation of material has a slightly stultifying effect on the reader The illustrations are clear and in general serve to amplify the text, but a number of the older photographs could have been deleted without detracting from the volume The present edition should continue to serve as a reliable and conservative guide to students and practitioners interested in the subject, although the volume is not nearly as comprehensive and illuminating as some of the other recent textbooks in this field

Mental Health Administration By Jack R Ewalt, M D Commissioner, Massachusetts Department of Mental Health Boston Cloth $5 50 Pp 168 Charles C Thomas, Publisher 301 327 E Lawrence Ave, Springfield, Ill, Blackwell Scientific Publications Ltd, 24-25 Broad St, Oxford, England Ryerson Press, 299 Queen St, W, Toronto, 2B, Canada, 1956

The administration of mental health institutions is no longer considered a job that anyone can do with good intentions but little knowledge or experience Today, in fact, there is an accrediting body that certifies psychiatrists for this position The commissioner of the Massachusetts Department of Mental Health has here written a small volume dealing with administration of mental health departments, community mental health programs, mental health centers, and mental hospitals In this book there are numerous practical recommendations concerning the mundane aspects of administration derived from the author's own varied experiences With all the details, and these certainly not complete, there is a noticeable absence of an explicit philosophy and a sense of values True, the details must be learned and applied to myriad problems, but without a value system they are applicable to institutions and not to the human being who is sick and suffering The clothing requisites per 1,000 patients per year or the number of domestics in a special type of school may be significant for the concept of organization but are irrelevant to the treatment goals unless the meaning of all services is oriented to the specific ends Therefore, this is not a good reference book but a manual of operations for those who need to know the means but not the end

Pregnancy and Birth A Book for Expectant Parents By Alan F Guttmacher Director of Gynecology and Obstetrics Mt Sinai Hospital, New York [Some of material in this book appeared in different form in author's book Into This Universe] Cloth $4 50 Pp 335, with drawings by Anthony Ravielli The Viking Press, Inc, 625 Madison Ave, New York 22 Macmillan Co of Canada, Ltd 70 Bond St, Toronto 2, Canada 1956

This book provides an answer to the inquisitive mind of the modern mother It cannot be compared with any previously published manual for expectant parents, as it is truly a textbook of obstetrics written in terms that the average lay person can comprehend It goes into much greater detail than any previous volume written for the expectant parent The author has made a definite effort to be precise and to explain frequently used medical terms in language that can be easily understood by the nonmedical public The book is written in his characteristically clear and interesting style, so that one can easily read this book from cover to cover

Present-day emphasis on knowledge about pregnancy and reproduction has been far in advance of the literature available for the lay public Therefore, this book will provide answers to those expectant parents who desire more than superficial information It will probably serve a more important purpose as a reference for those wishing medical information in terms that are easily understood The index is extremely complete and contains medical headings, as well as terms frequently used by the laity This book can be highly recommended to expectant parents

Occupational Therapy Principles and Practice By William Rush Dunton Jr M D and Sidney Licht M D Second edition. Cloth $8 Pp 373, with 17 illustrations Charles C Thomas, Publisher 301-327 E Lawrence Ave Springfield Ill , Blackwell Scientific Publications Ltd 24-25 Broad St Oxford, England Ryerson Press 299 Queen St W Toronto 2B, Canada, 1957

Extensive revisions have been made in this new edition of a leading book in its field Especially to be noted is the revision of the chapter on upper extremity amputees Emphasis is placed not only on the types and working mechanisms of a variety of prosthetic devices but also on details of retraining the amputee from the physical and psychic standpoints Other major changes involve the sections on occupational therapy for children, bibliotherapy, and psychotherapy The chapters on drama in the first edition have been replaced by those on the role of music and recreational therapy (games) The chapter on occupational therapy in tuberculosis could have been shortened, in view of therapeutic advances and shorter sanatorium care Throughout the book careful attention is given to the need for physician-supervised occupational therapy departments and the need for close teamwork in treating patients requiring rehabilitation

Clinical Use of Radioisotopes By William H Beierwaltes M D Associate Professor of Internal Medicine and Coordinator Clinical Radioisotope Unit University Hospital Ann Arbor Mich , Philip C Johnson M D Assistant Professor of Internal Medicine and Chief Radioisotope Unit Veterans Administration Hospital Oklahoma City and Arthur J Solari, B S , M S Instructor in Radiation Physics Department of Radiology University Hospital, Ann Arbor Cloth $11 50 Pp 456 with 126 illustrations W B Saunders Company, 218 W Washington Sq Philadelphia 5 7 Grape St , Shaftesbury Ave London W C 2 England 1957

This textbook is eminently suited for the beginner in the use of radioisotopes Its major assets are a uniformly high level of clinical judgment and the presentation of technique in recipe style, in such detail that a novice with skill in general laboratory work may expect to use isotopes successfully Included in this recipe style are detailed descriptions of virtually every isotope tracer technique in clinical use The coverage of physics is somewhat less satisfactory, being marred not only by a failure to convey the intended meaning but also by typographical errors, as in the exponentials, which will serve only to confuse the beginner The section on physics in relation to health is, however, well done The chapters on the clinical uses of radioiodine are especially useful

Muscle Relaxants in Anesthesiology By Francis F Foldes M D Director, Department of Anesthesia, Mercy Hospital Pittsburgh Publication number 294, American Lecture Series monograph in Bannerstone Division of American Lectures in Anesthesiology Edited by John Adriani M D Director Department of Anesthesia, Charity Hospital New Orleans Cloth $5 50 Pp 210 with illustrations by Margaret M Croup Charles C Thomas Publishers, 301-327 E Lawrence Ave Springfield Ill Blackwell Scientific Publications 24-25 Broad St Oxford England Ryerson Press 299 Queen St , W Toronto 2B Canada 1957

The muscle relaxants were introduced into clinical practice about 15 years ago This book summarizes the laboratory and clinical experience that has accumulated since that time It is informative, yet not overwhelming in detail The author appears biased in favor of succinylcholine but perhaps this attitude is justified The statement is made that when employed judiciously, cognizant of their pharmacological effects, other than those exerted at the neuromuscular junction, the muscle relaxants will increase rather than decrease the safety of the patient It is doubtful that evidence is yet available to justify this conclusion Occasional errors in spelling are surprising, for example, "afferant and "thiopenthal The format is attractive, and the book can be recommended to those studying as well as those practicing anesthesiology

Out of the Test Tube The Story of Chemistry By Harry N Holmes Ph D LL D Fifth edition Cloth $4 50 Pp 313 with 102 illustrations Emerson Books Inc 251 W 19th St New York 1957

This book is intended to interest the layman in chemistry and to make him more appreciative of the part this science plays in daily life The various chapters make light interesting reading for the author chooses his examples from experiences familiar to everyone The author covers briefly such topics as chemical warfare, hydrogen water inert gases, insects dyes, sugar and fats It is doubtful whether the physician would find much in the book that is new The last edition appeared in 1943 The facts and figures have been brought up to date but otherwise the book is little changed from the previous edition A chapter on atomic power has replaced a chapter on postwar chemistry

Modern Office Gynecology By George Blinick M D F A C S Attending in Obstetrics and Gynecology Beth Israel Hospital New York City and Sherwin A Kaufman M D F A C S Associate Attending in Obstetrics and Gynecology, Beth Isreal Hospital Cloth $4 50 Pp 218 with 47 illustrations Lea & Febiger 600 S Washington Sq Philadelphia 6 1957

A compend is, at best, a fragmentary presentation of knowledge and the authors have shown unusual recognition of the limitations of a pocket edition One-third of this volume is devoted to a well-chosen bibliography, and, in each instance, a sentence or two prepares the reader for what may be expected in the more detailed articles Thirty pages of line drawings clarify the text The general practitioner and the casual worker in this specialty should find this small volume quite worthwhile

QUERIES AND MINOR NOTES

ARTIFICIAL KIDNEY

To THE EDITOR —*For some time several members of the staff of a hospital have been interested in the purchase of an artificial kidney Several models have been investigated, including the "pressure cooker" type, which could be manufactured for a few dollars Please indicate the available kidneys, listed in the order of their functional capacity*

David B Thornburgh, M D , Marietta, Ohio

ANSWER —There are a number of very efficient and satisfactory types of artificial kidney devices available on the market The principal problem that presents itself in equipping a hospital with one of these devices, however, is not the type of kidney obtained so much as it is the need for an effective team of workers who are well versed in its manipulation and who are constantly available to apply it when needed So often a hospital procures one of these complicated pieces of apparatus without appreciating the fact that its use requires a well-trained team of workers who have had considerable experience in its use and who are available when called upon at short notice Unless such a team is available, it is an unwise expenditure of money to procure any such apparatus The simple pressure-cooker type of artificial kidney is by far the cheapest available, but even it cannot be obtained for "a few dollars," as reported in the lay press However, even this apparatus requires a trained team for its use The simplest procedure, which requires no special apparatus and which is entirely adequate for most purposes in which an artificial kidney is desired, is the use of intermittent peritoneal lavage by the simplified procedure as described by Grollman (Acute Renal Failure, Springfield, Ill , Charles C Thomas, Publisher, 1954) It is this consultant's advice, therefore, that the personnel who will be responsible for carrying out the procedure first become acquainted with the various procedures available, including intermittent peritoneal lavage, and then purchase the type of apparatus with which they have become familiar Otherwise the hospital will merely be saddled with the possession of another complicated piece of apparatus, the use of which by inexperienced personnel may entail more harm than benefit

PORPHYRIA

To THE EDITOR —*Is there a successful or even helpful treatment for porphyria?* *M D , Wisconsin*

ANSWER —An effective, reproducible form of treatment for porphyria is not available Convincing evidence concerning the value of any but the most nonspecific forms of therapy is lacking Prophylaxis is stressed in the management of acute intermittent porphyria, this includes avoidance of alcohol, barbiturates, and other toxic agents which have been shown to affect the disease adversely Chloral hydrate, opiates, and paraldehyde may be employed for relief of pain and apprehension Maintenance of nutrition and fluid and electrolyte balance are important objectives in treatment Avoidance of actinic and mechanical trauma is of major importance in managing the cutaneous symptoms Conflicting opinions have been expressed concerning the effectiveness of cortisone and corticotropin (ACTH) in treatment of porphyria, dramatic remissions and complete failures have been reported Congenital porphyria is treated with hematological support and judicious splenectomy

COMPARISON OF PATCH AND INTRADERMAL TUBERCULIN TESTING

To THE EDITOR —*Please discuss the relative merits of the Vollmer patch test and the Mantoux skin test for tuberculosis Is the degree of discrepancy between the two such that the less accurate one could not be safely used for screening an elementary school population? How does one interpret the result when the two outer test areas are red, with distinct borders but not raised, and when, furthermore, these reaction areas disappear about four days after the removal of the patch? In the mass application of patch tests, what errors should be avoided in the application of the patch?*

L David Comstock Jr , M D , Dowagiac, Mich

This inquiry has been referred to two consultants, whose respective replies follow —ED

ANSWER —The Vollmer patch test is alleged to have a 20% discrepancy when compared with the intradermal tuberculin test at proper dosage These discrepancies are both false positives and false negatives Therefore, the patch test cannot be used for any dependable studies and can be thought of as being merely a substitution for a Mantoux test under circumstances where it would be very difficult or inconvenient to use the latter, or where parental consent can be obtained for the patch test but not for the Mantoux test The Vollmer test is safe, of course, but it should not be used in screening an elementary school population

The test result as outlined in the question should be read as negative Hazards in using the test can be avoided by placing the patch where the child cannot remove it (between the shoulder blades, for example) and by issuing instructions as to washing and bathing while the patch is on, as it must be kept as dry as possible

ANSWER —The forerunner of the Vollmer patch test was introduced and considerably used by Lautier, of France, in 1908

The answers here published have been prepared by competent authorities They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply Anonymous communications and queries on postal cards cannot be answered Every letter must contain the writer's name and address but these will be omitted on request

A sizable number of comparative studies have been made with the patch test and the intracutaneous (Mantoux) method of administering tuberculin Some workers have found a discrepancy of approximately 30% in favor of the intracutaneous method Others have reported less difference in the results of the two tests

Although it is generally agreed that the intracutaneous method is more accurate, the patch test is now used rather extensively in survey work, where, for one or more reasons, it does not seem feasible to use the intracutaneous method For example, in St Louis, the Academy of General Practice as a public service has administered the patch test to 125,000 school children with good results The Iowa Tuberculosis and Health Association and the Iowa Trudeau Medical Society are employing the patch test in a statewide certification-of-schools project

Allergy to tuberculoprotein among infected children is usually at a high level, since their infections were acquired relatively recently because of their age Therefore there has not been time for allergy to wane to any great extent

It is usually thought that the patch test yields results comparable to the first dose of original tuberculin or purified protein derivative administered intracutaneously Therefore, those who do not react to the former should then have a second dose of the latter administered However in survey work among school children this usually is not done

Areas of redness of the skin from either method of administration are not considered as tuberculin reactions The usually accepted characteristics consist of an area of edema or induration, or both, of 5 mm or more in diameter

Errors to be avoided in administration of the patch test include failure to cleanse the skin thoroughly with a fat solvent, applying the patch where the child can reach it and remove or loosen it (the interscapular area is a good location), applying the patch loosely so that the tuberculin is not in constant contact with the skin, and removing the patch in less than 48 hours

INDISCRIMINATE PRESCRIBING

To the Editor —*Is there any scientific basis for what seems to be an almost indiscriminate prescribing of the multiple vitamin preparations, particularly those that contain a long list of minerals and even the male and female sex hormones? This does not refer to the therapeutic use of vitamins when indicated*

Connell H Miller, M D Sligo, Pa

Answer —The indiscriminate prescribing of any medicament is to be deplored The relative innocuousness of vitamins does not justify exception of them from this attitude Simple combinations of reasonable quantities of those vitamins for which there is a recognized human requirement have a legitimate place in the treatment of deficiency states, in so called "protective therapy" (as a preventive measure in instances in which some physiological or pathological process increases the requirement above the usual level), or as supplements to nutritionally restricted dietaries The practice of prescribing vitamins without establishing a clear diagnostic reason is to be discouraged The deliberate employment of a vitamin preparation as a placebo is not dishonest, but when so employing vitamins the physician should clearly recognize the reason for the prescription and should consider its cost to the patient

The dosage of vitamins prescribed should bear some relationship to human requirements for therapeutic use, multivitamin preparations containing five times or so the daily recommended allowances (Food and Nutrition Board, National Research Council Publication 302, 1953, p 36) of the factors are reasonable, for supplementary use, amounts equivalent to the daily recommended allowances are adequate In the instance of the fat-soluble vitamins A or D, gross overdosage leads to states of hypervitaminosis

There is no sound justification for most vitamin mineral combinations, especially for those that purport to contain long lists of "trace minerals and other essential elements" If mineral deficiencies exist, they are unlikely to be directly related to vitamin lack Combination of sex hormones, antibiotics, or other therapeutic agents with vitamins is based on conjectural reasoning and a paucity of well-considered evidence The dosage of the nonvitamin component in such combinations is often ineffectively small, but the formulation is inordinately expensive The administration of such combinations should be limited to the exceedingly rare instance in which both agents are clearly needed and the dosage level is effective A decision to use multivitamin preparations, alone or in combination with other medicaments (hormones, minerals), should in each instance be based on a careful analysis of the individual patient's needs and must not serve as a cover for ignorance as to the nature of the patient's illness

PROLONGED POSTPARTUM BREAST SECRETION

To the Editor —*A 21-year-old woman gave birth to her second child 18 months ago Breast feeding was unsuccessful due to the watery nature of the milk, although the breasts were engorged Since that time, the patient has had a more-or-less continual secretion of breast fluid The fluid is thin and yellow-tinged and very irritating to the skin Secretion is worse from the 10th day of the cycle and lasts right through the last day of the period Large doses of testosterone help the condition slightly Premarin has no effect The secretion is bilateral, and both breasts are perfectly normal to palpation*

M D, North Carolina

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —This is one of the most annoying of all postpartum complications The incidence is fairly rare and the duration usually short, although several cases of 10 to 12 years' duration have been recorded Once breast feeding is judged not to be feasible, prompt attention should be given to the breasts By accepted methods and possibly by endocrine therapy, the secretion is as a rule controlled Persistent and prolonged secretion can become a distressing symptom, as in this patient Tincture of benzoin compound should be applied to the skin (a silicone solution has recently been tried for skin protection), the breasts should then be bound tightly and evenly with bland adhesive tape, and methyl testosterone, 10 mg daily for 14 days, should be given Paradoxically, it has been found that injection of the newer progesterone preparations (Delalutin, 250 mg) once a month lessens the secretion from the breasts during therapy In the past, x-ray therapy and even mastectomy have been recommended, which is indicative of the severity of this symptom but certainly these are not considered at present One should rule out the possibility of other pathology such as changes in the anterior pituitary as galactorrhea is a symptom of certain types of endocrinopathy Roentgenogram of the sella turcica should be made Eighteen months certainly is a long time for both patient and doctor but the prognosis, if there are no complications, is favorable

Answer —While the described breast secretion is not completely typical it seems to be a variant of galactorrhea When this condition is seen in association with amenorrhea, adenomas of the pituitary gland have frequently been discovered, and it is suggested that x-ray studies of the sella turcica be made The condition has not infrequently been resistent to treatment Fluid restriction, adequate support of the breasts, and avoidance of manipulation is suggested On the assumption that the secretion may relate to some excess pituitary stimulation, relatively large doses of estrogen have been employed, as, for example, 10 mg of Premarin and diethylstilbestrol, orally, from the end of menstruation for the succeeding two weeks On occasion, the administration of 5 mg of progesterone by injection for 4 doses at three-day intervals, begun at midcycle, has been of benefit

CHRONIC CONJUNCTIVITIS

To the Editor —*A patient with chronic conjunctivitis has not improved with antibiotic, allergic, and immunological treatment A culture disclosed some diphtheroid organisms, similar to those found in some ulcerative cutaneous lesions in service personnel, which responded to local use of antitoxin in the form of wet dressings Is there any record of the empirical use of diphtheria antitoxin, diluted or undiluted, by instillation into the conjunctival sac? Are there any risks in such application, assuming absence of sensitivity from previous use of serum?*

W H Elmer, M D , Rockford, Ill

Answer —The only pertinent reference available is 'Des Conjunctives" by A Gabrielides, 1921, page 117, in which undiluted diphtheria antitoxin was used successfully as an adjunct to parenteral therapy The local use of diphtheria antitoxin in experimental animals, as well as culture sensitivity tests, is relatively simple With the exception of a rare strain which is toxic and transferable in animals, diphtheroids are not toxic in human conjunctiva Should local treatment with diphtheria antitoxin be used, supplementary parenteral injection of diphtheria antitoxin is suggested, unless hypersensitivity exists A more frequent cause of the case described is a subconjunctival micrococcic (staphylococcic) infection combined with vascular hypersensitivity The value of toxoid therapy may be experimentally determined with sensitivity tests

PARALYSIS OF EYE MUSCLES

To the Editor —*Could the application of whole-gland pituitary extract used to assist in hair growth have any adverse effects on a patient? A graduate nurse aged 67 years, began this treatment in June, 1956, and used the product every other day for approximately four months, when she noted paralysis of the right internal rectus eye muscle This cleared 3 days later, but 11 days after the onset of the paralysis in the right eye the same muscle of the left eye became paralyzed, and this condition still persists after two and a half weeks There has been no diplopia, tinnitus, or deafness With the attack on the right eye there was slight horizontal nystagmus (quick component to the left) When the left eye became involved, vertigo was very severe, with falling to the right There is no history of eye trouble prior to the onset of this acute illness, and all examinations to date (spinal fluid, skull x-rays, neurological tests, eyegrounds, and blood pressure [135/80 mm Hg]) are within normal limits for a patient aged 67 The only medicament the patient takes is Premarin, 1 25 mg , and methyltestosterone, 10 mg , daily for the past five years because of osteoporosis Could there be some relation between the use of this hair conditioner and the eye involvement?*

Ella M A Enlows, M D , Fort Lauderdale, Fla

This inquiry has been referred to two consultants, whose respective replies follow —Ed

Answer —There is nothing in whole-gland pituitary extract likely to cause a paralysis of the ocular muscles The possible causes of a paralysis of an ocular muscle in a 67-year-old patient include a host of neurological, vascular, and systemic conditions The most likely causes at this age are arteriosclerosis involving the nucleus of the third nerve, a blood dyscrasia, a brain tumor, diabetes, myasthenia gravis or an encephalomyelitis

Answer —No relation could possibly exist between the use of the hair conditioner and the eye involvement The pituitary extract is a protein, and hence it is not absorbed by the skin and is rapidly destroyed by the bacteria of the scalp Any benefit of this topical medicament would be due to the production of local hyperemia and the correction of dryness

As for the eye muscle involvement, the absence of diplopia and ptosis suggests a conjugate deviation due to a supranuclear lesion If so, the movement of convergence should still be elicited With assumption of this mechanism, a single lesion on the left side could explain all the findings In the transient irritative stage the eyes would deviate to the right, simulating a paresis of the right medial rectus, while in the permanent destructive stage the eyes would turn toward the left (i e, to the lesion) and so simulate a paresis of the left medial rectus The causes of supranuclear palsies are varied The postmenopausal osteoporosis in this case suggests a vascular basis, as deposition of calcium in the arterioles is a common factor in all types of osteoporosis The patient's age, 67, and the vertigo immediately associated with the second eye finding suggest a "minor stroke"

TELEVISION RADIATION AND DERMATITIS

To THE EDITOR —*A 40-year-old patient has what appears to be a mild bilateral cicatricial entropion, conjunctivitis, and a generalized facial dermatitis characterized by dryness and dilated peripheral blood vessels For the last seven years he has been employed as a television monitor During this time he has worked seven to eight hours a day, five or six days each week, with his face 12 in (or slightly less) from a television tube, making fine adjustments in the sharpness of the picture on the tube What is the amount and nature of radiation emanating from a television tube source? Could this be the source of ophthalmological involvement?*

Grant B Dallabough, M D , Teaneck, N J

ANSWER —In 1946, when the early impetus of television first struck the New York area, this consultant and others attempted to measure the x-radiation and the ultraviolet radiation from a television tube The glass in the tube absorbed all the ultraviolet rays, and no x-rays coming from any part of the tube were detected It is doubted whether this would be the source of the dermatitis, with entropion and conjunctivitis

TELEVISION RADIATION

To THE EDITOR —*Please supply information as to whether television sets emit radioactive rays and whether there might be some danger especially for children, if they sit too close to the television set*

Artur Philipsborn M D , Cleveland

This inquiry has been referred to three consultants, whose respective replies follow —ED

ANSWER —X-rays produced in the commonly used television sets have energies of 15 000 to 20,000 volts They have little penetration and are absorbed in the faceplate of the picture tube In addition, many sets have plastic or glass plates in front of the faceplate for further safety For tubes using higher voltages 25,000 volts or more, such as the color television tubes, some rays penetrate through the faceplate, and the tube manufacturers warn that safety glass, ¼ to ⅜ in thick, should be placed in front of the faceplate It seems certain that the manufacturers of television sets, in their own interest, will heed the warning of the tube manufacturers in addition to carrying out their own controls so as to ensure the safety of their product

ANSWER —In the course of many years of both clinical and private practice, this consultant has never seen any patient demonstrating any appreciable biological effect from rays emitted by a television tube The rays emitted by the usual tube are similar to the very soft grenz rays The risk of exposure beyond the screen of the apparatus is of little consequence With the new type of television apparatus, however, where the rays are generated at an energy of 25 kv, a type of soft x-ray is produced which may have some biological effect on those viewers who may be in direct contact with the television screen A physicist is better equipped to measure the exact value of the rays emitted by the television tube

ANSWER —It is true that some "radioactive rays" do emanate from the electron tube of a television set However, these rays are extremely soft and are completely dissipated by the glass screen or wooden cabinet of the set Research at the Sarnoff Laboratories, in Princeton, N J , indicates that there are no harmful effects because of radiation from watching or sitting near a television set This is true of children as well as of adults

CONDUCTIVE SHOES FOR USE IN OPERATING ROOM

To THE EDITOR —*Please supply information concerning use of shoes, or metallic clips which can be attached to shoes, so that surgical personnel will be made nonconductive for static electricity The hospital has adequate grounding of equipment, outlets, and electrically conductive flooring in the operating room The only problem is to find a simple piece of apparatus which can be used to see that all personnel in surgery are properly grounded*

Meyer Schindler, M D , San Francisco

ANSWER —First, this consultant would like to correct a common error made when talking about safety measures in hospitals The inquirer in this instance requested information on appliances for shoes that would make surgical personnel "nonconductive for static electricity" It is certain that the information requested is for a simple economical device that will provide contact from personnel to a conductive floor in order to make the individual and floor continuously conductive for static electricity"

A conductor is a material that will permit the flow of electricity over or through it A nonconductor is a material that will not permit the flow of electricity over or through it

Conductive footwear of some type must be worn by all personnel in the anesthetizing locations Conductive soled shoes are available today in many department and shoe stores throughout the United States Since the price is not prohibitive, this consultant feels that doctors, nurses, orderlies, and maids who work in the anesthetizing locations in hospitals should wear conductive shoes Substitutes, such as conductive booties, slip-ons, and snap-on heels, are fairly satisfactory, however, they may prove to be expensive because of frequent replacement and present a nonprofessional appearance The names and manufacturers of various types of conductive footwear may be obtained by writing to the Committee on Hospital Hazards of the American Society of Anesthesiologists

A simple inexpensive device for conductive footwear was described by Virtue and associates in *Anesthesiology* (15 113, 1954) They recommended that an aluminum strip from an intravenous infusion bottle be bent so that it will touch the sock inside of the shoe and then make contact with the floor at the broad part of the heel, it can be held in position with small nails or adhesive. The aluminum strips are satisfactory, unless the wearer has especially thick socks, in which case he should dampen them slightly at the heel.

YELLOW-TINTED GLASSES

To the Editor.—*My hobby is target shooting. I frequently see advertisements for yellow-tinted glasses, designed to increase the contrast and details of the target. These are also supposed to be particularly effective on cloudy or overcast days. I would like an opinion from an ophthalmologist both as to their effectiveness and as to the amount of tint required to attain this.*

John D. Jennings, M.D., Hugo, Okla.

Answer.—Yellow-tinted glasses transmit yellow unchanged, but the short-wave rays of blue and green are diminished. When used at dusk or on overcast days, the yellow becomes relatively brighter than the blue or green. Hence, yellowish animals appear more distinct, and for this reason such glasses have been used by hunters for years. If used to overcome dazzling, a deep tint is required, but on cloudy days a light tint is more advantageous.

SWEAT APPARATUS IN ANIMALS AND MAN

To the Editor.—*Please provide information on which animals are most closely related to humans regarding the sweat apparatus.*

Marvin N. Winer, M.D., Buffalo, N. Y.

This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—The structure and function of sweat glands in the pads of the foot and digits of domestic cats correspond closely to those of the eccrine glands of man. The chimpanzee has numerous eccrine glands over its body, but the sweating responses of these glands have not been investigated. The sweat of the horse, the dog, and the ox is secreted by apocrine glands, which are structurally and physiologically different from the eccrine glands.

Answer.—Sweat or perspiration is not found to occur over the general surface of the body in any hairy animal other than the horse. In the horse, certain parts of the skin sweat more readily than others. The base of the ears is the first place for sweat to appear. This is followed by the appearance of sweat along the neck, the sides of the chest, along the surface of the back, and, lastly, the hind quarters. There is no sweating of the legs—the fluid found there has run down from the other body surface. The mule and the donkey sweat with difficulty and then only at the base of the ears. Cattle sweat freely from the muzzle. Sometimes the general surface of the body may appear to be sweating. Sheep do not sweat in the ordinary way, in which the sensible sweat is observed. The pig sweats only on his snout. The dog and the cat sweat freely from the foot pads and the muzzle. There is no sensible perspiration, however, from the general surface of the body.

The sweating process is a continuous one in animals; when excreted in small amounts, the fluid is evaporated as fast as it forms and is passed off as an insensible vapour—hence the name "insensible sweat or perspiration." When the body condition is such as to produce more fluid and the atmospheric condition is unfavorable to its evaporation, this fluid collects on the skin and is ordinarily called sweat or "sensible perspiration."

ABDOMINAL PAIN FOR FIFTEEN YEARS

To the Editor.—*A 40-year-old woman has had right lower quadrant pain periodically for 15 to 20 years. There has been no relation to menses. Treatment has consisted of foreign-protein injections, with some considerable relief. Pain has become so severe recently, with signs of femoral nerve irritation, that operation was undertaken. Operation revealed a small mass in the broad ligament and along the pelvic wall that grossly resembled a sarcoma. Although complete removal of the mass was impossible, considerable improvement followed and lasted for about two months. The pathological diagnosis was chronic granulomatous inflammation of the pelvis, etiology undetermined. No acid-fast organisms were found on stain. No culture was done because of the feeling that the condition was sarcoma. The patient has a positive patch test for tuberculosis and has a sister with draining chest sinuses due to tuberculosis. Her chest x-ray has been normal over the past three years since her last contact with her sister. Currently she is in remission from pain after receiving 40 units of corticotropin (ACTH) on two successive days. Is treatment as such advisable in view of the long history of pain, or should the antituberculosis drugs be tried? The patient is very reluctant to submit to operation again.*

M.D., Ohio.

This inquiry has been referred to two consultants whose respective replies follow.—Ed.

Answer.—Further diagnostic studies should be carried out on this patient in the form of aspiration biopsy of the mass in the broad ligament and along the pelvic wall. This should be done through the vagina with a long, large-bore needle in which a special suction syringe, devised at Memorial Center in New York City and supplied by United Surgical Supply Company, Port Chester, N. Y., is used. Satisfactory material should be obtained for cytological study as well as culture, and further definitive treatment should depend on reports of studies of material taken.

Answer.—The only implication of neurological involvement is the statement "femoral nerve irritation." If this is a true nerve involvement, then the immediate program for the patient should consist of x-rays of the lumbar sacral spine, lumbar puncture, with careful manometric studies, examination of the spinal fluid for total protein, sugar, and cells, Wassermann reaction, and colloidal gold test. The spinal fluid should be cultured and centrifuged for direct smear of precipitate and Papanicolaou stain If there is no evidence of involvement of the spinal vertebrae, pelvis, spinal cord, and cauda equina, then it is the opinion of this consultant that a reexploration is mandatory

PERSISTENT LIVER TENDERNESS AFTER HEPATITIS

To THE EDITOR —*A patient has persistent liver tenderness four and a half months after viral hepatitis He apparently contracted this hepatitis on a tour of the Caribbean After being sick for six weeks, he gradually returned to full-time work Liver-function tests now are practically normal Any suggestion of therapy will be greatly appreciated*

M D, California

This inquiry has been referred to two consultants, whose respective replies follow —ED

ANSWER —It is not unusual to have some degree of discomfort and tenderness in the right upper quadrant following exertion as long as four to six months after the onset of hepatitis One cannot be quite sure what is meant by the statement, "Liver-function tests are practically normal" If this is true for such significant tests as Bromsulphalein dye retention, thymol turbidity, and serum bilirubin, one would think that there would be little reason to be concerned over eventual prognosis at this time There is no specific therapy to recommend Undue fatigue should be avoided, and, when discomfort does occur, greater than usual periods of rest should be taken Hepatic function and physical examination should be checked at intervals of three weeks

ANSWER —The persistence of liver pain and tenderness after apparent recovery from viral hepatitis suggests that the recovery is not yet complete It is stated that the liver-function tests are "practically" normal What tests remain abnormal, and what is their degree of abnormality? A high degree of Bromsulphalein retention is indicative of chronic liver disease A mild hyperbilirubinemia may indicate the presence of a smoldering hepatitis In some cases the presence of one of the sequelae of hepatitis cannot be definitely ascertained without liver biopsy

The treatment of the sequelae of hepatitis is similar to that of the acute disease and consists of rest, high-protein diet, and vitamin supplements The degree of activity allowed should be just short of provoking liver pain and tenderness If hyperbilirubinemia persists, the steroids or corticotropin are useful therapeutic adjuvants

CULDOSCOPY TO DIAGNOSE ECTOPIC PREGNANCY

To THE EDITOR —*What is the value of culdoscopy in the diagnosis of ectopic pregnancy? Is it applicable?*

Thomas C Case, M D, New York

ANSWER —Several series of patients in whom culdoscopic examination has been employed give evidence that this procedure has resulted in the early diagnosis of unruptured tubal pregnancy in a significant percentage of cases The use of proper anesthetic techniques, either local infiltration or low spinal, together with careful introduction of the culdoscope, seems to carry minimal risk In cases of suspected ectopic pregnancy, many prefer preliminary needle puncture of the cul-de-sac to detect the presence of blood in the peritoneal cavity Culdotomy, opening of the cul-de sac to allow palpation and visualization, is preferred by some

BIOPSY OF CERVIX

To THE EDITOR —*Please describe an adequate and acceptable procedure for the biopsy of a cervix showing a velvety erosion surrounding the external os*

M D, New York

ANSWER —Any cervical erosion should be subjected to a routine office biopsy This is a simple procedure and without hazard to the patient A simple punch biopsy forcep is utilized, and tissue is obtained from the 12, 3, 6, and 9 o'clock locations around the external os This four-quadrant procedure eliminates the possibility of missing a circumscribed lesion A cervix from which a biopsy specimen is so obtained is not cauterized or otherwise treated until the pathologist's report is obtained This information will then determine the procedure to be followed

MULTIPLE SCLEROSIS

To THE EDITOR —*A woman patient is suffering from multiple sclerosis Please provide information concerning long-term treatment*

George Welker Jr, M D, Morganfield, Ky

ANSWER —There is no specific treatment for multiple sclerosis, but there is reason to believe that comprehensive medical management helps these patients, and they are certainly entitled to the benefits of good supportive therapy The rationale is outlined by Wainerdi (*M Ann District of Columbia* 23 7, 1954)

CAUTIONS IN USING ARTIFICIAL KIDNEY

To THE EDITOR —*Have any deaths resulted from the use of the artificial kidney for dialysis of poisons? Is it ever the cause of any morbidity? There is considerable interest in its usefulness in poisoning, and a knowledge of any dangers inherent or encountered is essential* *J Greenblatt, M D, Stamford, Conn*

ANSWER —Since patients subjected to dialysis by the artificial kidney for any purpose are in critical condition, it is obviously impossible to state if deaths have resulted from the use of this procedure However, on the basis of experimental studies on dogs, it has been demonstrated that many precautions must be taken if one is to avoid harmful effects Thus the use of an excessive dose of anticoagulant, toxic agents present in the membrane, overloading with fluid, or loss of blood volume into the membrane could prove fatal With proper use by experienced personnel, however, there should be no cause for morbidity or harm from these sources Details of the advantages and disadvantages of the artificial kidney as compared to other procedures are given in "Acute Renal Failure" by Grollman (Springfield, Ill, Charles C Thomas, Publisher, 1954)

« Washington News »

New Doctor-Procurement Bill Moves Ahead in Congress • •
WHO Meets Here Next Year, but City Not Yet Selected • •
Senators Investigate Dangers from Radiation Exposure • •
Details on Patients in Proprietary Nursing Homes • •

DOCTOR PROCUREMENT BILL UP FOR SENATE ACTION

A new doctor-procurement bill has passed the House and is awaiting Senate action There is every prospect that it will become law before the expiration July 1 of the "doctor draft which has been on the statute books since the Korean war in 1950 The new proposal, in the form of an amendment to the regular draft act, provides for the selective call-up for the next two years of physicians, dentists, and allied specialists through age 35

The group subject to call are those whose obligation under the regular draft has been delayed through educational deferments In other words, physicians would be called up as members of their profession rather than by age groups Service would be the same as that for the regular draft—two years

Rep Paul Kilday (D, Texas), floor manager for the bill, pointed out to the House that the discrimination remaining in the new proposal (requiring a man to enter service because of his profession) is intended to be counterbalanced by the amount of compensation he receives and the rank at which he is commissioned when he enters service

Rep William Bray (R, Ind) noted that, when the "doctor draft' was passed in 1950, physicians up to the age of 50 could be drafted, which caused "a great deal of hardship in many communities where doctors had been practicing for many years' But he said that each time the matter came before the committee the age has been lowered, so that now it is down to age 35

The House also indorsed the Armed Services Committee recommendation that the national, state, and local medical advisory committees be continued The Defense Department original draft extension proposal left out these committees The American Medical Association strongly urged their continuation

WHO ACCEPTS U S INVITATION FOR NEXT YEAR'S MEETING

As expected, the World Health Assembly will hold a 10th anniversary commemorative session and the 11th session of the assembly in the United States in the spring of 1958 The American invitation, approved by Congress last year, was accepted unanimously by the assembly s committee on administration, finance, and legal matters at the Geneva meeting Favorable action by the assembly itself was assured

Congress has authorized expenditure of $400,000 to compensate the assembly for the additional costs of holding the meeting in the United States, away from WHO s permanent headquarters in Geneva The assembly is the governing body of World Health Organization

The invitation to the assembly was presented by Rep John Fogarty (D, R I), a member of the U S assembly delegation The acceptance was received by Dr Leroy E Burney, surgeon general of U S Public Health Service, who heads the U S delegation to WHO Dr Fogarty assured WHO that this country would do "all in its power' to make both sessions successful A city has not yet been selected for the meetings

In other actions the assembly

1 Called for greatly increased contributions from "all sources to insure success of the world-wide malaria eradication campaign, which it is estimated will cost 15 million dollars yearly for five years

2 Adopted a resolution recommending that the five-year term of Dr M G Candau, WHO director-general be extended for another five years after its expiration date of July 21, 1958 The resolution states The services performed by Dr Candau have contributed immeasurably to the successful operation of WHO and it is desirable that he continue as director-general for a period beyond the expiration date of the present contract' Dr Candau is a native of Brazil

3 Adopted a 1958 budget of $13,500,000, an increase of $2,800,000 over this year s budget The U S share will be one-third The figure is half a million dollars less than requested by Dr Candau, but $1,500,000 more than proposed by the U S

HEARINGS ON DANGERS OF RADIATION EXPOSURE

The head of the Atomic Energy Commission s division of biology and medicine has informed a congressional hearing that to say that we will tolerate no increase in exposure to radiation is equivalent to saying that we will make no use of nuclear energy

This dilemma, Dr Charles Dunham pointed out to the joint atomic energy subcommittee on radiation applies equally well to the use of radiation in medical practice

A physician uses X-rays to diagnose an injury or a disease because he believes that the benefits to the patient outweigh any detrimental effect of the X-rays " Dr Dunham testified He was lead-off witness in a three-week inquiry into problems of radiation stemming from bomb tests

"Although the X-ray doses required for diagnosis are generally small, a physician could not justify exposure of the patient without some reason A physician may use larger doses on a patient suffering from cancer The treatment is obviously justified when one weighs the anticipated benefits against the possible undesirable effects'

Dr Dunham argued that the development of nuclear energy and the production of radioactive materials are inseparable "With moderate effort, we can prevent release of a large fraction of these materials With greater effort we can further reduce the release However, if we continue to reduce the fraction we are willing to release, we eventually reach a cost of control which makes the operation prohibitive At some poin — we must balance the undesirability of further incr

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From the Washington Office of the American Medical Association

in the quantity of radiation to which we are subject against the benefits to be anticipated from whatever application of nuclear energy we are considering'

Chairman Chet Holifield, who conducted extensive hearings last year as head of a committee on civil defense problems, said it was not the purpose of the joint committee to draw any moral, political, or philosophical conclusions, nor to get into the question of disarmament Rather, the subcommittee is devoting its attention mainly to the radioactive fall-out problem and to a possible projection of what the hazards are

Mark Mills, Ph D , of the University of California Radiation Laboratory, said scientists working to tame fusion (the reaction that powers the H-bomb) are not yet at the stage of the 1942 Chicago fission reaction which led to atomic energy

HEARINGS ON UNION WELFARE FUNDS

Hearings are underway before a special Senate subcommittee of the Labor and Welfare Committee on several bills providing for various degrees of federal supervision over union welfare funds, including their health and disability insurance aspects Chairman John Kennedy (D , Mass) and other members of the committee said they were anxious to get Senate action on some plan before adjournment

Opening the hearings, Senator Kennedy said grave responsibility rests on the federal government to safeguard these plans for their beneficiaries the estimated 75 million workers and their families who look to them for some form of protection

Earlier studies, including the Dave Beck investigation, have disclosed unsound practices among some of the funds, where workers rights are being jeopardized or ignored,' Senator Kennedy declared However, like others on the subcommittee, he explained that the vast majority of the funds are run efficiently and honestly

Early discussion at the hearings indicated that the subcommittee is not in agreement on how far the federal government should go in checking up on the funds Senator Gordon Allott (R , Colo), whose bill is one of those under consideration, warned against all-over national legislation or federal action in areas where states 'are awakening to their own responsibilities, as in life insurance

This is the third time in recent years a Senate committee has undertaken to draft legislation for some measure of control over union welfare funds During the 83rd (Republican) Congress, Senator Irving M Ives (R , N Y) was chairman of a subcommittee that studied the subject, and Senator Paul Douglas (D , Ill) headed the group in the last Congress Senator Ives remains on the subcommittee, but Senator Douglas has left the parent committee so is not on the subcommittee

Senator Ives, who is a co-sponsor of the Allott as well as the Douglas bill, summed up his views this way

The need for legislation was readily apparent from the examples of wrongdoing uncovered by these investigations Recent disclosures before the Senate Select Committee Investigating Improper Activities in the Labor or Management Field have served to emphasize the need for prompt action in this and related fields At least $26 billion is now tied up in pension and welfare funds, and annual contributions to such funds are estimated to total an additional $5 billion a year"

Most subcommittee attention seems to center on the Douglas bill and an amended administration bill, measures that are similar in their major provisions Both would require registration of plans, the filing of annual reports, and criminal penalties for misuse of funds or fraudulent reports, and would apply equally to union-managed funds, management-operated funds, and funds run jointly by unions and management

The Douglas bill would put the Securities Exchange Commission in charge of registration, filing of annual reports, and making information in reports available to the press and the general public, whereas the administration bill would give this responsibility to the Labor Department As it is presently written, the administration bill would not exempt any such fund, but the Douglas bill would completely exempt a fund involving fewer than 25 workers, and under most conditions require reports only from funds involving 100 or more workers

Speaking of his bill (which resembles the administration bill in this respect), Senator Douglas said

'This is not a regulatory bill That power of regulation is left to the states It is only a disclosure bill, with obvious added protections against perjury and embezzlement Disclosure, we believe, will serve not only as a deterrent to abuses, but also as an aid to self-policing by those among the unions, employers, banks and insurance companies who recognize voluntary restraints as a desirable alternative to more stringent federal regulation"

STATISTICS ON PATIENTS IN PROPRIETARY NURSING HOMES

The Public Health Service is publishing the first detailed study of patients in nursing homes, including information on age, sex, and disabilities Data were gathered through the joint efforts of the Commission on Chronic Illness, the health departments and agencies of 13 states, and the PHS

Here are some findings

1 The average age of patients in proprietary nursing homes is 80, and all but 1% are over 45

2 Two-thirds are women

3 One-fifth are confined to bed all the time, and less than half can walk without assistance

4 More than half the patients are mentally confused, at least part of the time

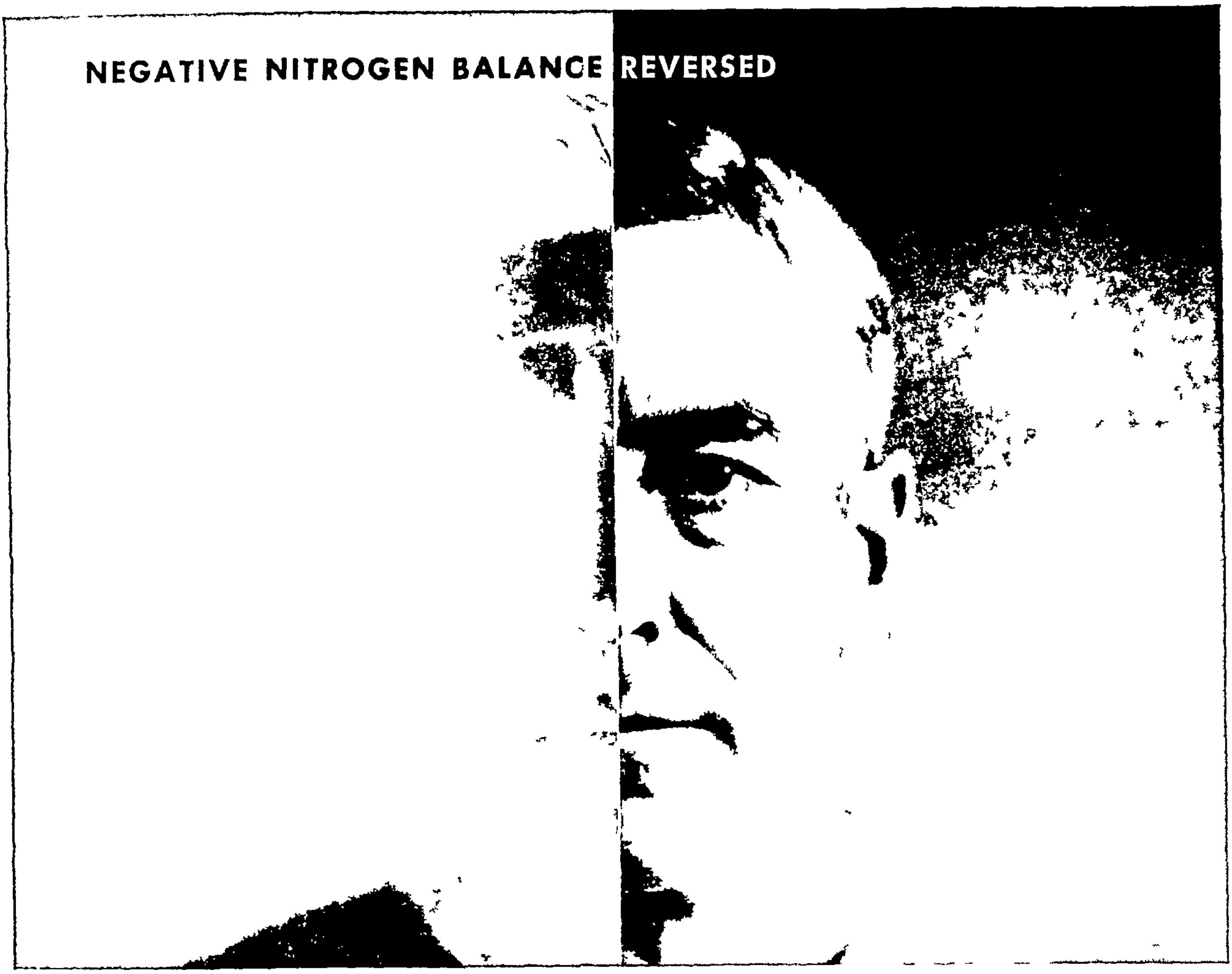
5 Two of every five have cardiovascular conditions and many have arthritis or rheumatism

Information also is given on type of care received, charges and how money is raised for payment, type of staff in the homes, occupancy, and age of buildings While no actual count was made of proprietary nursing homes patients, the total is estimated at 135,000

MISCELLANY

Drs Lyndon E Lee Jr and Alfred M Steinman have joined the VA's Department of Medicine and Surgery research and education service Appointed to newly created positions, the men will be, respectively, chief of surgical research in extra-VA division and assistant chief of the clinical studies section Another VA employee, Miss Irene Grant, social work specialist in the Washington central office, has received a meritorious service award for developing the foster home program for mental patients and other disabled veterans

The Air Force recently held medical meetings in Europe and in the Far East Dr Alton Ochsner was guest speaker at the Far Eastern Air Force medical meeting, while Dr Frank W Hartman, medical research advisor to the Air Force surgeon general, attended the aeromedical symposium in Germany



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1 Axelrod A E Beaton J R Cannon P R and others Symposium on Protein Metabolism New York The National Vitamin Foundation Incorporated (March) 1954 p 100

2 Proceedings of a Conference on the Clinical Use of Anabolic Agents, Chicago Illinois G D Searle & Co April 9 1956 pp 32 35

SEARLE

From other Pages

The Celebrated Frere Jacques—Cutting for the Stone

Frere Jacques said that his name was Jacques Beaulieu, he came from the village of Langfonnierre in Burgundy his parents were very poor, and his only education was to learn to read and write imperfectly He joined the army, and at the age of twenty-one years he became the servant of a quack named Pauloni who cut for the stone Frere Jacques claimed Divine inspiration as the origin of his operation, but even in Paris he performed other operations which were peculiar to quacks, so it seems certain that he learned the operation from Pauloni He spent six years with Pauloni, and when the latter went to Venice Frere Jacques stayed at home and commenced operating on his own account As he approached the age of forty years [about 1697] he became deeply religious, although he never seems to have taken any religious vows, he assumed the habit of a monk lived the life of a hermit existing on bread and soup and resolved to devote his life to charity He operated successfully on a canon of the church, who persuaded him to go to Paris, giving him a strong recommendation to the officials of Notre-Dame He must have had a strong personality, as in spite of this extraordinary mode of dress he became the idol of the vulgar and the bane of the profession

When he arrived in Paris he introduced himself to the Charite hospital through the first surgeon Marechal, but the physicians would not allow him to operate The friendly canon had introduced Jacques to De Harley, first president of the Parliament of Paris who became his friend and protector De Harley ordered Dr Mery surgeon of the Hotel-Dieu, to attend an experimental operation by Frere Jacques on a dead body a stone having been placed in the bladder above the pubis The operation of Frere Jacques at this stage was very much of a hit-or-miss affair, if he hit the stone at the first plunge all was well if he missed it he felt around for it with a sharp knife, and you can well imagine the damage that was done It must have been the latter which caused Cheselden to make the following statement in his book

> They say he performed the operation without any direction and without any knowledge of the parts he was to cut a thing not to be mentioned without horror But of late his character has been set in a very different light and though it is more than probable he himself knew not what he did, yet there are now, those who pretend to tell us exactly though if their testimonies are to be regarded there is no place that he did not cut one time or other

Frere Jacques became dispirited and left Paris and went to Fontainebleu where the Court was situated at that time He had letters of introduction to the Court physicians and was well received, and here he met Fagon a physician of note He first operated successfully on a boy in the presence of Fagon Duchesne and Felix, all Court physicians or surgeons, who were very impressed He then performed six more operations four in hospital and two on private patients all were successful and the whole Court was deeply impressed in his favour When the Court returned to Versailles, Frere Jacques returned to Paris strong in reputation and friends His progress was rapid and enterprising but the surgeons still opposed him

Frere Jacques for a time became an itinerant lithotomist, visiting Germany and Holland and operating with some success His operation had made a deep impression on Fagon and in 1700 Fagon recalled him to Paris and took him into his house For many months they studied anatomy, Frere Jacques was introduced to the grooved staff, and it is stated that, after th first incision, never again did Frere Jacques's knife leave th groove of the staff Fagon put the operation on a scientifi basis

Fagon himself had a stone, and at this time two men, Fago himself and the Marechal de Lorges, decided to be operated on by Frere Jacques Fagon at the last moment changed his mind, he was operated on by Marechal, a surgeon who had learnt Frere Jacques's operation, and he recovered Th Marechal de Lorges, a wealthy nobleman, was more faithful but cautious He assembled at his hotel 22 poor people afflicted with stone Frere Jacques operated on the 22 with complete success Then the Marechal de Lorges was operated on and on the second day he died in torture The death of one so well known was too much, and Frere Jacques left Paris never to return —P Hopkins, Cutting for the Stone, *The Medical Journa of Australia,* Jan 26 1957

Relatives' Reactions to Postoperative Condition of Patient

A doctor visited his daughter after a serious abdominal operation and told his wife, She's doing very well His wife saw the child later in the day and came home very upset and said to her husband, How could you say she was doing well She looked dreadful to me It is a great mistake for relative to visit patients too soon after an operation as they will almos always be shocked by what they see, even though the patien is reported to be as well as can be expected by the doctor In one hospital passes were issued to relatives on the morning of the patient's operation and they sometimes arrived in the ward when the patient was being brought back from the theatre reeking of anaesthetic, possibly vomiting and uttering those cries and groans which often accompany that not unpleasant period of semiconsciousness which follows an operation and which may be most distressing to anxious relatives An exception to this post-operative ban on relatives is when the patient is a child, for nothing can comfort and calm a child more than the presence of his mother as consciousness is gradually regained It is, however essential to explain to the mother exactly what to expect, a child coming round from a tonsillectomy smeared with bloody vomit is not a pleasant sight, but even the most sensitive parent will accept this if she is forewarned Quite apart from operations patients who have been seriously ill may be so changed in appearance that relatives seeing them for the first time may be very distressed unless they are prepared, this reaction on the part of the visitor may itself distress the patient and cause him to become alarmed about his own condition Children, even more than adults, may be upset by a visit to hospital It is a great shock to a child to see an adult ill or even to see a familiar face without its false teeth, and they should not be subjected to such an experience except for very special reasons —F F Hellier, M D, Patients Relatives as Hospital Visitors, *University of Leeds Medical Journal,* February, 1957

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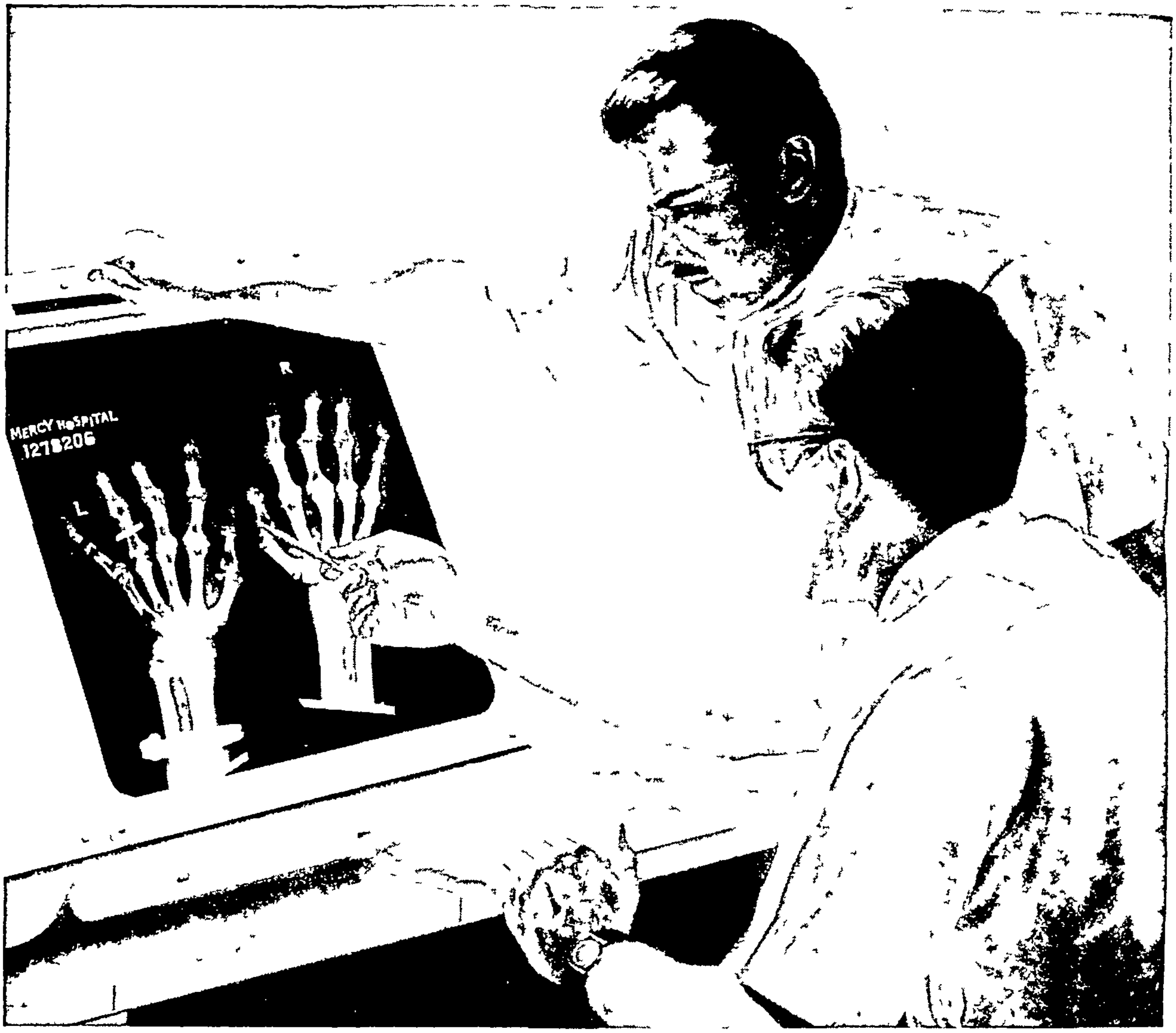

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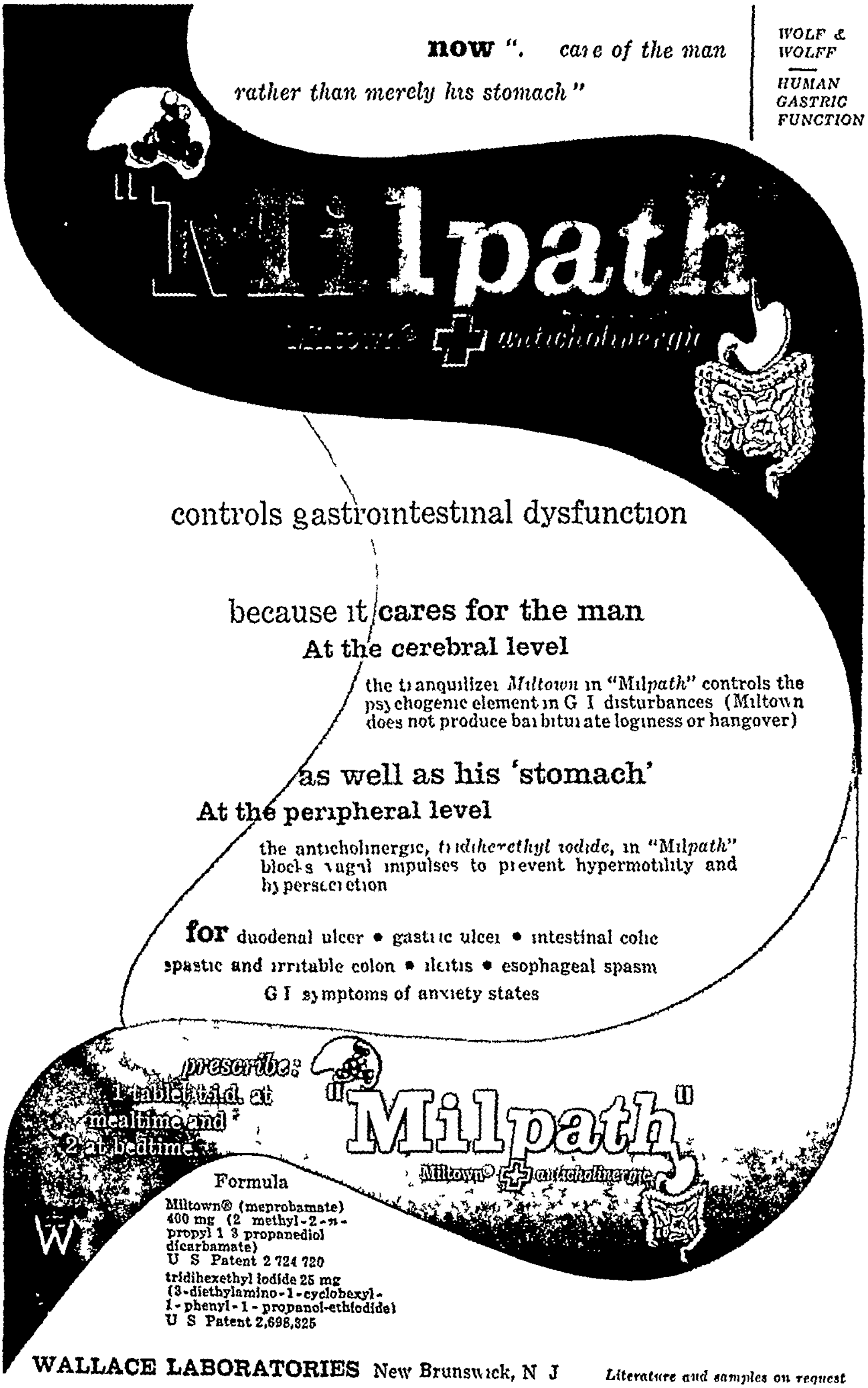

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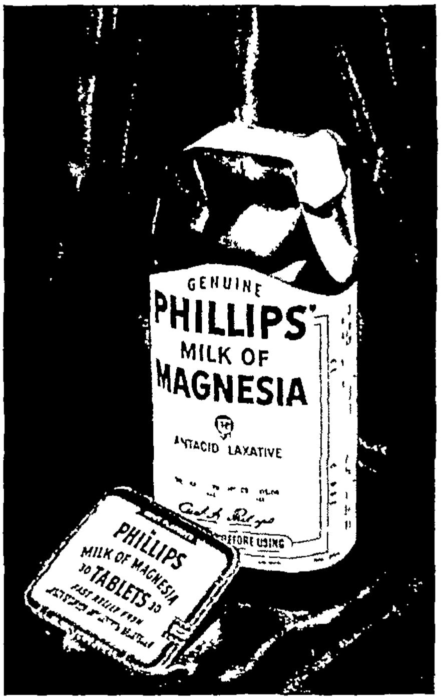

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MEETINGS

AMERICAN MEDICAL ASSOCIATION Dr George F Lull, 535 North Dearborn St, Chicago 10, Secretary
1957 Clinical Meeting Philadelphia, Dec 3 6
1958 Annual Meeting San Francisco June 23 27
1958 Clinical Meeting, Minneapolis Dec 2-5
1959 Annual Meeting, Atlantic City June 8 12
1959 Clinical Meeting Dallas, Texas Dec 1-4

AMERICAN

June

American Association of Neuropathologists Claridge Hotel Atlantic City N J June 16 17 Dr Leon Roizin 722 W 168th St New York 32 Secretary

American Neurological Association Hotel Claridge Atlantic City N J June 17-19 Dr Charles Rupp 133 S 36th St Philadelphia 4 Secretary

American Orthopedic Association The Homestead Hot Springs Va June 24 27 Dr Harold A Safield 715 Lake St Oak Park Ill Secretary

American Pediatric Society La Playa Hotel Carmel Calif June 17-19 Dr A C McGuinness 1427 I St N W Washington 5 D C Secretary

American Rheumatism Association Royal York Hotel Toronto Ont Canada June 23 28 Dr Edward F Hartung 580 Park Ave New York 21 Secretary

Idaho State Medical Association Sun Valley June 16 19 Mr Armand L Bird 364 Sonna Bldg Boise Executive Secretary

Maine Medical Association The Samoset Hotel Rockland June 23 25 Dr Daniel F Hanley Dudley Coe Infirmary Bowdoin College Brunswick Executive Director

Society of Biological Psychiatry Claridge Hotel Atlantic City N J June 15-16 Dr George N Thompson 2010 Wilshire Blvd Los Angeles 57 Secretary

Society of Nuclear Medicine Skirvin Hotel Oklahoma City June 20 23 Dr Robert W Lackey 452 Metropolitan Bldg Denver Secretary

Society for Pediatric Research La Playa Hotel Carmel Calif June 16 21 Dr Sydney S Gellis 330 Brookline Ave Boston 15 Secretary

Wyoming State Medical Society Jackson Lake Lodge Moran June 16 19 Mr Arthur R Abbey Box 2036 Cheyenne Executive Secretary

July

American Congress on Maternal Care Palmer House Chicago July 8 12 Mr Howard I Wells Jr 116 S Michigan Ave Chicago 3 Executive Secretary

Rocky Mountain Cancer Conference Shirley Savoy Hotel Denver July 10 11 Dr John S Bouslog 835 Republic Bldg Denver Chairman

INTERNATIONAL AND FOREIGN

June

Canadian Medical Association Edmonton Alberta Canada June 17 21 1957 Dr A D Kelly 150 St George Street Toronto 5, Ont, Canada General Secretary

Canadian Neurological Society Saskatoon Sask. Canada June 14 16 Dr J L Silversides Suite 321 Toronto Western Hospital Toronto Canada Secretary

International Congress on Rheumatic Diseases Toronto Ont Canada June 23 28 1957 For information address International Congress on Rheumatic Diseases P O Box 237 Terminal A Toronto Ont Canada

International Convention of X-Ray Technicians Sheraton Park Hotel Washington D C U S A June 8 13 1957 Miss Leslie A Majors R T 5710 Newton St Cheverly Md U S A Chairman Publicity Committee

July

British Medical Association Newcastle upon Tyne July 15-19 1957 Dr A Macrae B M A House Tavistock Square London W C 1 England Secretary

International Congress of Clinical Pathology Brussels Belgium July 15 20 1957 Prof M Welsch Service de Bacteriologie et de Parasitologie Universite de Liege 32 Blvd de la Constitution Liege Belgium Secretary General

International Congress of Dermatology Stockholm Sweden July 31-Aug 6 1957 Dr C H Floden Karolinska Sjukhuset Hudkliniken Stockholm 60 Sweden Secretary General

International Congress of Electroencephalography and Clinical Neurophysiology Brussels Belgium July 21-28 1957 For information address Dr R G Bickford Mayo Clinic Rochester Minnesota U S A

International Congress of Neurological Sciences Brussels Belgium July 21-28 1957 For information address Dr Pearce Bailey National Institute of Health Bethesda 14 Maryland U S A

International Congress of Neuropathology Brussels Belgium July 21-28 1957 Dr Ludo van Bogaert 47 rue de l Harmonie Antwerp Belgium Secretary General

International Congress of Neurosurgery Brussels Belgium July 21-28 1957 For information address Dr William B Scoville 85 Jefferson Street Hartford Connecticut U S A

International Congress of Nutrition Paris France July 24 29 1957 For information address Congress International de Nutrition 71 Blvd Pereire Paris 17e France

International Congress on Occupational Health Helsinki Finland July 1-6 1957 Dr Pertti Sumari c/o Tyoter Veyslaitos Haattmaninkatu 1 Helsinki Toolo Finland Secretary General

International Congress of Permanent International Committee on Industrial Medicine Helsinki Finland July 1 6, 1957 For information write Secretary General 3 Chemin de l Escalada Geneva Switzerland

International Congress of Psychology Brussels Belgium, July 28 Aug 3 1957 Dr M Louis Delys 296 Ave des Sept Bonniers Forest Brussels Belgium Secretary General

International Gerontological Congress Merano Bolzano Italy July 14-19 1957 For information address Segreteria Quarto Congresso Internazionale de Gerontologia Viale Morgagni 85 Firenze Italy

International League Against Epilepsy, Brussels Belgium July 21 28 1957 Dr Radermecker Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Meeting on Forensic Pathology Brussels Belgium July 20 21 1957 For information address Dr F E Camps Dept of Forensic Medicine The London Hosp Medical College Turner St London E1 England or Dr Arthur H Dearing Executive Secretary College of American Pathologists 2115 Prudential Plaza Chicago 1 Ill U S A

International Neurological Congress Brussels Belgium July 21 28 1957 Dr Ludo van Bogaert Institut Bunge 59 rue Philippe Milliot Berchem Antwerp Belgium Secretary General

International Poliomyelitis Conference Geneva Switzerland July 8-12, 1957 Secretariat Hotel du Rhone Geneva Switzerland

International Psychoanalytical Association Paris France July 28 Aug 1 1957 For information write Dr S Nacht 187 rue St Jacques Paris, France

International Society of Geographical Pathology Paris France July 9-11 1957 For information address Dr J P Hardouin, 21, Avenue Pierre de Serbie Paris 16 France

International Society for the Welfare of Cripples London England July 22 27 1957 For information address Miss M Drury 34 Eccleston Square London S W 1 England

International Symposium on Medical Social Aspects of Senile Nervous Diseases Venice Italy, July 20 21 1957 For information address Secretariate Viale Morgagni 85 Firenze Italy

Neuroradiologic Symposium Brussels, Belgium July 21-28 1957 For information address Professor Melot Hôpital Universitaire St Pierre Brussels Belgium, Secretary General

August

Argentine Congress of Gastroenterology Salta Argentina S A Aug 12-17 1957 Secretariat Avenida Santa Fe 1171 Buenos Aires Argentina S A

Congress of International Society for Cell Biology, St Andrews Fife Scotland Aug 28 Sept 3, 1957 Prof H G Callan Bell Pettigrew Museum The University St Andrews Fife Scotland Secretary General

International Congress on the Biology of the Hair Follicle and the Growth of Hair Royal Society of Medicine London England, Aug 7-9 1957 Dr G H Bourne London Hospital Medical College, Whitechapel London E 1 England Hon Secretary

International Congress of European Society of Haematology, Copenhagen Denmark Aug 26 31 1957 Dr Aage Videbask Blegdamsvej 11 Copenhagen Denmark Secretary General

International Congress on Group Psychotherapy, Zurich Switzerland Aug 29 31 1957 For information write Dr Joshua Bierer 140 Harley St London W 1 England

International Society for the Study of Biological Rhythms Semmering Austria Aug 26 28 1957 For information write Prof A Jores II Med Universtats Klinik, Hamburg Eppendorf Germany

International Symposium on Curare and Curarizing Substances University of Brazil Rio de Janeiro, Brazil Aug 5-10 1957 For information write Prof Carlos Chagas Instituto de Biofisica Universidade de Brazil 458 Avenida Pasteur Rio de Janeiro Brazil or Prof Daniel Bovet Instituto Superiore di Sanita 299 Viale Regina Elena Rome Italy

World Federation for Mental Health Copenhagen Denmark Aug 11-17 1957 Miss E M Thornton, M A 19 Manchester St London W 1 England, Secretary General

September

Congress of International Society of Orthopedic Surgery and Traumatology Barcelona Spain Sept 16 21 1957 For information address International Society of Orthopedic Surgery and Traumatology 34 rue Montoyer Brussels Belgium

Congress of International Union of Railway Medical Services Paris France Sept 16 21 1957 For information write Dr J Ortega 41 rue Michelet Paris 6 France

International Conference on Radio Isotopes in Scientific Research Paris France Sept 9 20, 1957 For information address United Nations Educational Scientific and Cultural Organization 19 Avenue Kleber Paris 16 France

International Congress of the International Union of the Medical Press London England Sept 13 14 1957 For information write British Medical Association B M A House Tavistock Square London W C 1 England

International Congress of Military Medicine and Pharmacy Beograd and Opatija Yugoslavia Sept 29 Oct 5 1957 Colonel Dr Aleksandar Mezic rue Nemanjina 15 Beograd Yugoslavia Secretary General

(Continued on page 30)

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INTERNATIONAL CONGRESS OF PSYCHIATRY Zurich Switzerland Sept 1 7 1957 For information write Prof J Wyrsch Stans (Lucerne) Switzerland

INTERNATIONAL SYMPOSIUM OF MEDICINE AND SOCIAL HYGIENE Trieste September 6 12 1957 Dr Mario Lovenati Via Cavana 18 Trieste Secretary General

WORLD MEDICAL ASSOCIATION Istanbul Turkey Sept 29 Oct 5 1957 Dr Louis H Bauer 10 Columbus Circle New York 19 New York U S A Secretary General

October

ASSEMBLY OF ASSOCIATION OF FRENCH SPEAKING DOCTORS Great Hall Faculty of Medicine 85 Boulevard Saint Germain Paris France Oct 16-18 1957 For information address General Secretary Congrés Francais de Medecine Prof G Boudin Paris France

CONGRESS OF INTERNATIONAL SOCIETY OF SURGERY Mexico City Mexico Oct 27-Nov 2 1957 Dr L Dejardin 141 rue Belliard Brussels Belgium General Secretary

FRENCH CONGRESS OF OTOLARYNGOLOGY Faculte de Medecine de Paris Paris France Oct 15-18 1957 For information address Administrative Secretary French Congress of Otolaryngology 17 Rue de Buci Paris France

INTERNATIONAL CONGRESS OF INTERNATIONAL SOCIETY OF ANGIOLOGY Atlantic City N J U S A Oct 10 13 1957 Dr H Haimovici 105 East 90th Street New York 28 New York U S A Secretary General

November

INTER AMERICAN CONGRESS OF PAN AMERICAN MEDICAL ASSOCIATION Mexico City Mexico Nov 18 22 1957 Dr Joseph J Eller 745 Fifth Ave New York 22 N Y U S A Executive Director

PACIFIC SCIENCE CONGRESS Bangkok Thailand Nov 18 Dec 2 1957 For information address Pacific Science Council Secretariat Bishop Museum Honolulu 17 Hawaii

PAN AMERICAN CONGRESS OF ENDOCRINOLOGY Buenos Aires Argentina Nov 3 9 1957 For information address Secretaria General Sociedad Argentina de Endocrinologia y Metabolisms Santa Fe 1171 Buenos Aires Argentina

PAN PACIFIC SURGICAL CONGRESS Honolulu Hawaii Nov 14 22 1957 Dr F J Pinkerton Room 230 Alexander Young Bldg Honolulu 13 Hawaii Director General

1958

April

INTERNATIONAL CONGRESS OF INTERNAL MEDICINE Sheraton Hotel Philadelphia Pa U S A April 24 26 Mr E R Loveland 4200 Pine St Philadelphia 4 Pa U S A Secretary General

INTERNATIONAL CONGRESS OF LEGAL AND SOCIAL MEDECINE Madrid Spain April 16-19 For information address Prof B Piga Dept of Legal Medicine Madrid University Madrid Spain

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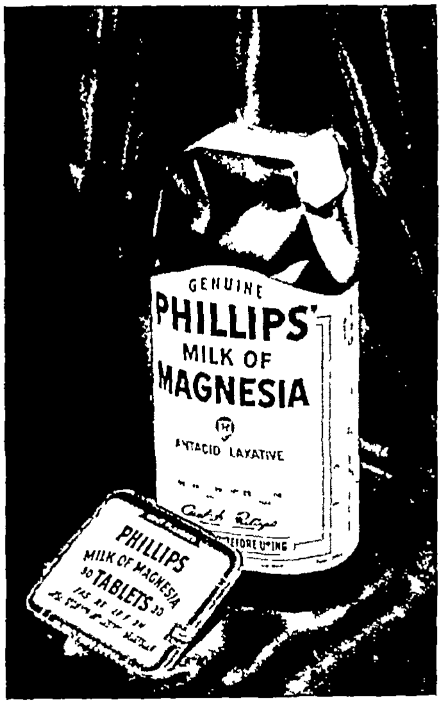

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MAGAZINE—TELEVISION REPORT

The following list of current medical articles in mass circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported*

MAGAZINES

Reader's Digest, June, 1957

How to Prolong the Prime of Life by Paul de Kruif

According to the article the addition of vitamins to highly nutritious diets may maintain good health for people in the older age brackets

You Can Learn to See More, by Wolfgang Langewiesche

A good many facts about the nature of the seeing mechanism in man are given in this article

The Act of Love by Marion Hilliard, M D

According to the article, Love-making is woman's greatest hazard If she overcomes the difficulties her life will be radiant, if she fails, the misery is enduring

Why Doctors Fight Death—Even in Hopeless Cases'

Five letters sent in to the *Reader's Digest* concerning its condensation of the *Atlantic Monthly* article A New Way of Dying, tell why many people believe the physician must do everything possible to prolong life in every case

Life, May 27, 1957

'The Unending Search for Normal Vision, by Richard Carter

This informative article deals with much of the fact and fiction, past and present, with regard to eyesight

Capper's Farmer, June, 1957

My Community Was Ashamed of Me! anonymous as told to Clyde Zimmerman

In this article a farm wife tells of her struggle to re emotional health

The Ladies Home Journal, June, 1957

'Childbirth Without Fear and Without Pain by Gr[illegible] Dick Read, M D

The author writes Natural childbirth means exactly what the two words say—giving birth naturally, as God intended without real pain

McCall's, June, 1957

Allergies—Are They Inherited? by Milton J E Senn M D

The author answers nine questions on allergy in children

The Doctor Talks About Postnatal Blues

The article gives 10 suggestions designed to prevent emotional maladjustment in mothers after childbirth

Vogue, June, 1957

The Pill and You,' by Marie Nyswander, M D

In an interesting account of the pill taking habit the author writes They [habitual pill takers] may take four sleeping pills then lie in bed reading and waiting for the pills to give them the rabbit punch

Better Homes and Garden, June, 1957

For Diabetics—A Pill Instead of a Puncture by Bernard Seeman

According to the article, Orinase a new drug for diabetes may allow many victims to control their disease with a tablet that can be swallowed

The Slavery of Sex Freedom by Howard Whitman

In the first of a series called America's Moral Crisis, the author gives a bleak picture of the state of morals in this country

The American Weekly, June 9, 1957

What Every Parent Should Know About Children's Diseases by Samuel Karelitz M D

A description of eight diseases of children is given with information on causes, symptoms treatment, complications, and other items of particular interest

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Quarterly
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The QUARTERLY CUMULATIVE INDEX MEDICUS appears twice a year, volumes are cloth bound and cover periodicals received within the six months indicated These volumes are a convenient and inclusive reference for current medical literature Invaluable for practitioners, specialists, teachers, editors, writers, investigators, students and libraries

Dr. Robert [illegible]
[illegible] Medical College